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THE INCREASING INCIDENCE AND COMPLICATIONS OF CHRONIC BACILLARY DYSENTERY*

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A study of acute and chronic bacillary dystentery in the far South has been made, since the preliminary report of one of us (D.N.S.). In the past 16 years that have elapsed since 1926, to the present writing, an estimated 700 cases of bacteriologically proved bacillary dysentery or *B. dysenteriae* infection of the bowel, have been diagnosed and treated. A certain percentage of individuals chronically infected with the bacillus of dysentery have no diarrhea or the classical syndrome of dysentery and these are therefore, hereinafter, designated as *B. dysenteriae* infections. This type of case, which is not unusual but frequently overlooked, was emphasized in a previous communication.

INCIDENCE

In 1932, in the New Orleans area, one of us (D.N.S.) reported an increased incidence of infections with the bacillus of dysentery. Up to this report, in 1932, it was demonstrated the prevalent strain of organism causing bacillary dysentery in Louisiana was the Flexner bacillus. As time went on and many more cases of chronic sporadic bacillary dysentery were studied, it was found the lactose fermenter of Duval was the etiologic factor in the predominant number of cases. At the present writing, however, with the increased prevalence, virulence and more frequent incidence of complications it is to be noted that strains of the original Shiga bacillus and of the Flexner are more frequently encountered and, as a matter of fact, the lactose fermenter reported ten years ago is now an unusual finding in chronic bacillary dysentery.

Bacillary dysentery has shown a definite tendency to become endemic in many states of the Union since our earlier reports. In their report in Illinois in 1936, L. H. Block and A. Simon credit the writers with the prophecy, in 1926, that "infection of the intestinal tract with the bacillus of dysentery would spread throughout the country as it had in Louisiana and in the far South, if the disease were not properly controlled." To prove that this is correct Block and Simon found, at the Elgin State Hospital of a population of 4,500 individuals, there were 475 cases of bacillary dysentery all of which were Flexner. Since the work of Block and Simon, reports have come from Virginia, Missouri, California, New York and Vermont and others. In Virginia over a three year period, McGinnis, McLean et al. reported 161 cases in east central Virginia. In their instances they found a Flexner organism as the main offender. In a routine examination of 688 well individuals they found 110 infected and acting as carriers. In Missouri, Lapp in 1936, reported 10 cases of dysentery caused by the Shiga organism. In New York, in 1936, Stebbins states there were 27 epidemics of dysentery, of which nine were proved bacillary; in 1937, 48 epidemics and 13 proved to be bacillary; in 1938, 72 epidemics and 24 proved

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to be bacillary. In the first instance 260 individuals were involved, in the second, 324, and in the third, 1200.

In 1934, Reed reported the infection as being widespread throughout the state of California. In 1940, Quinlivan in New York State, reported an infection of bacillary dysentery at a boys' camp wherein there were 340 campers, 105 infected. Miller also reported an outbreak of dysentery of the Hiss type in this state. In 1940, Block and Ferguson reported an outbreak of Shiga dysentery in Michigan. In 1941, in Vermont, Thorne reported an epidemic at the Brandon State School and in this instance the Flexner was the offending organism.

COMPLICATIONS

First of all, Felsen speaks of the insidious nature of bacillary dysentery. He states that next to syphilis, bacillary dysentery is perhaps the greatest disease mimic of all times. He feels that probably the most logical concept of bacillary dysentery is one that regards it as a focal intestinal manifestation of a systemic infection with toxic absorption. It was originally shown by us that many of the manifestations such as arthritis, myocarditis, vascular dysfunction, and even obstructing colon spasm, are frequent manifestations of protein hypersensitiveness to the bacillus of dysentery infecting the patient. The favorable results of treatment have accrued from measures directed towards the desensitization of these patients. Other complications which are of an organic nature rather than of functional origin, result directly from the pathology originally established in the bowel. We particularly wish to call attention to the possibility of perforation occurring more frequently than expected or even anticipated, in any case of chronic bacillary dysentery, no matter how mild the intestinal symptoms may be. In fact an individual with *B. dysenteriae* infection of the bowel in a period of remission, following treatment, or without treatment, is always a potential victim of this most serious complication.

The complications are many and occur very frequently. Some of the complications are very serious and may occur when least expected as in some cases with comparatively mild symptoms. Perhaps the most disastrous condition developing incident to bacillary dysentery is perforation of the colon. This finding is definitely in contrast to the earlier teachings of this disease when it was thought the infection, from the pathologic point of view, involved only the superficial mucous membrane of the bowel. The deeper penetration of the bowel, as observed in our series of cases, may be localized but in some instances a large segment of the bowel may be so involved in an ulcerative and gangrenous process that this entire section of the colon sloughs completely. Such a possibility in any case of bacillary dysentery warrants a serious consideration of every case of the disease. In 1939, several cases of perforation complicating bacillary dysentery were reported by one of us at the meeting of the American Gastroenterological Association. In two of these individuals there was an absence of intestinal symptoms just prior to the perforation. The following case is a striking example of this rather common occurrence.

CASE NO. 1

W. D. P., aged 57, had complained for a period of eight weeks of slight generalized pain and occasional frequency of stools. On March 1, he was seen in the morning after having had a severe attack of intestinal colic two days before. He had an appendectomy many years before. The physical examination of the abdomen was negative and the temperature was normal. At this time a proctoscopic examination showed a diffusely inflamed mucous membrane of the rectum and sigmoid. Scrapings of the mucous membrane were taken for culture. On the evening of this day of March 1, intense pain developed, the temperature rising to 101° F. At this time there was a definite change developing. The right side of the abdomen, especially the muscles of the right lower quadrant, was rigid on palpation. There was a distinct mass over the cecum about the size of a small orange. Suspecting perforation of the cecum, as previously observed but not immediately recognized in other cases of bacillary dysentery, the patient was hospitalized at once. The treatment consisted of absolute rest in bed and only water and readily absorbed non-residue liquids by mouth. Within five days of his initial examination, the cultures defi-

nitely contained the bacillus of dysentery, Shiga strain. We were, therefore, convinced a sudden and localized perforation of a dysentery ulcer had taken place in the cecum.

Chronic *B. dysenteriae* infection of the bowel may exacerbate to such an extent that the disease may mimic the acute surgical abdomen. This does occur in some individuals infected with the dysentery bacillus, but who never had any of the intestinal symptoms of dysentery, before the onset of the acute abdominal symptoms (Bond). In fact, the prodromal symptoms were of a gastric nature, especially epigastric pain, nausea and vomiting, or symptoms of an upper abdominal entity. It should, therefore, be emphasized that a patient suffering with *B. dysenteriae* infection may not ever give a history of having had a diarrhea, or any acute intestinal symptoms.

The common acute abdominal diseases simulated by *B. dysenteriae* infection are acute cholecystitis, pancreatitis, hepatitis with an accompanying jaundice, and, of course, one may readily surmise that many an appendix is removed because of the believed acute nature of the organ when, in reality, the chronic bacillary dysentery infection is the offender lurking in the background.

Aside from these commoner sites we know of one particular instance wherein it was believed that the patient was suffering from a chronic intestinal obstruction and, in reality, the x-ray examinations did show such a phenomenon (Case No. 4). In this individual there was a history of intestinal pain and diarrhea at intervals for many years. There was a definite change in the symptomatology in the past year when there was noted a gradually increasing chronic constipation, so much so that no bowel elimination took place over a period of seven days even with the use of laxatives. There was found a marked narrowing of the transverse colon for a distance of approximately two and one-half inches near the splenic flexure. This narrowing proved purely functional in nature, an enterospasm due to an allergic reaction of the intestine.

CASE NO. 2

H. V., a white man, 46 years old, was first seen in April, 1937. At that time he complained of severe pain in the abdomen. He had frequent bloody stools during the previous ten days. At times the abdominal pain was severe and generalized. He was very weak and somewhat delirious. The examination demonstrated the abdomen to be generally distended and very tender. The blood count showed 4,300,000 red blood cells, 85 per cent hemoglobin, and 14,000 white cells. The proctoscopic examination revealed a diffuse inflammation and marked edema of the entire rectum and sigmoid. The stool culture had previously shown positive for bacillus of dysentery, Duval strain. A definite mass could be palpated in the right iliac fossa. The temperature was 103°. On April 20, the temperature rose to 106.4° (rectal). The blood count showed red blood cells 4,400,000, hemoglobin 85 per cent and white blood cells 22,000. Acute perforation of the cecum complicating bacillary dysentery was suspected. Following an infusion of 1000 c. c. of 5 per cent glucose and normal saline, the patient developed chills with a drop of blood pressure from 160/85 to 80/40. An acute dilatation of the heart complicated the picture. The localized peritonitis with mass formation complicating the chronic bacillary dysentery subsided in a period of two weeks. Of immeasurable diagnostic value is the subsequent development in this case. After a lapse of three and a half years, at the age of 50, this man developed an acute appendicitis. Within eight hours of the acute symptoms, the appendix was removed. Above and away from the base of the appendix there was noted a mass of pericecal adhesions at the site of the perforated cecum which complicated the bacillary dysentery, three and a half years previously.

CASE NO. 3

A. B., aged 59, had been ill for several months. When first seen there had been nausea and vomiting for one week. There had been no history of diarrhea. The examination revealed an acute upper abdominal syndrome, there being marked rigidity of the upper abdomen, especially the upper right rectus and tenderness on pressure. The urine contained urobilinogen, and the icterus index was elevated to 24. The temperature was 104.6° (rectal), with a leukocytosis of 12,250. An acute cholecystitis was diagnosed and operation recommended. Although the gallbladder was normal, a cholecystostomy was performed. Three days following the operation there was an onset of intestinal symptoms with blood and mucous diarrhea. The stool cultures showed bacillus of dysentery, Shiga strain.

DISCUSSION

The above case is a striking example of the occurrence of chronic *B. dysenteriae* infection of the bowel without manifestation of classical bowel symptoms, such as intestinal pain, diarrhea, blood and mucus in the stool for a long period of time. In such in-

stances, as reiterated above, the patients may go undiagnosed and subsequently develop serious symptoms or complications not suspected as being a part of a dysenteric infection. Pneumonia developed in the course of the severe dysenteric infection. The patient subsequently died of meningococcal meningitis.

Such other complications of a functional nature and, therefore, not serious as is perforation, are intense localized obstructing colonic spasm, causing persistent and severe pain in the area of spasm. This abnormal muscular contraction is now believed to be a phenomenon of vasomotor reaction to the infecting bacillus of dysentery, synonymous with bacterial allergy. A striking example of this functional disturbance in the bowel is the following case.

CASE NO. 4

A female, aged 57, had a long history of abdominal pain and periodic attacks of diarrhea. In the past year the intestinal motility had changed to a constipation of increasing degree. In fact, when seen on January 8, 1942, the bowels would not move after strong laxatives and enemata. The barium meal showed an area of spasm of several inches in the transverse colon proximal to the splenic flexure. This contraction of the bowel wall prevented the barium from going through that segment for four days and allowed only a small part of the barium to traverse it after 120 hours. A study of the cultures of scrapings from the sigmoidal mucous membrane gave colonies of *B. dysenteriae*, Shiga strain. After the administration of atropine, hypodermatically, the barium enema revealed relaxation of the previously observed bowel wall spasm. This latter condition has been overcome by the method used by us in the desensitization of cases of *B. dysenteriae* infection which show such allergic phenomenon as this case illustrates.

In the following case there is another illustration of intense localized intestinal spasm causing severe pain, but no obstruction since the contraction of the bowel was not completely annular.

CASE NO. 5

Mrs. I. L. had a history of severe left lower abdominal pain but regular evacuation of the bowel without history of diarrhea or blood in the stool. The cultures from direct scrapings of the rectal and sigmoidal mucous membrane gave positive *B. dysenteriae*, Flexner strain. The first barium enema examination demonstrated a definite localized filling defect in the lower descending colon. After atropine injections, a second barium enema showed relaxation of the spasm which previously gave the radiologic picture of a filling defect. The normal contour of the bowel and complete relief of intestinal pain has been obtained, as in the previous case, by neutralization with graduated dilutions of autogenous vaccine.

DISCUSSION

These two cases prove to be illustrative of an allergic reaction to the organism infecting the intestinal tract, namely the bacillus of dysentery. These cases demonstrate the necessity for a more careful study of an apparent serious intestinal lesion. In these patients, on the first clinical and x-ray observations, we suspected a filling defect as seen in malignant or benign tumors causing partial or almost complete constriction. On bacterial survey it was found these patients were infected with one or other strain of the bacillus of dysentery. Remembering the rather frequent occurrence of neuromuscular reactions in the intestine to these infecting bacilli of dysentery, further radiologic studies were made, after antispasmodics, and the previously demonstrated filling defect proved to be functional in type. Proof of this allergic phenomenon was the complete relief of the signs and symptoms following desensitization of the patient with vaccine therapy.

SUMMARY AND CONCLUSIONS

Since our preliminary report, in 1926, on the not unusual occurrence of chronic bacillary dysentery in this part of the country, we have shown the endemic nature and the constantly increasing prevalence of sporadic bacillary dysentery in and around New Orleans. In a subsequent study of this disease in our section of the country in 1932, we predicted the spread of bacillary dysentery and its increasing incidence in other sections of the United States. This prophecy has been borne out by the reports of cases emanating from many of the other states, including New York, New Jersey, Illinois, California, Vermont, Missouri and Virginia. At this time we wish to emphasize the continued increase in the number of cases of sporadic bacillary dysentery. The strain of the bacillus of dysentery has varied in our cases and the prevalent organism

has been one of the strains, namely the Duval bacillus at one time, the Flexner strain at still another, and, at present, we are encountering more cases, than ever before, due to the Shiga strain. It is to be noted in our experience, the present cases show a more virulent type of infection than in the previous years.

We believe that this increase in incidence and virulence of bacillary dysentery in this and other sections of the country is very pertinent to the aggregation of great numbers of men in the different camps and the various communities. We believe that the possibility of this infection spreading from a local community to one of these camps is very great, and certainly a very close vigilance should be observed and should a case of dysentery be found, this individual should be isolated and every effort be made to prevent the spread of this very serious disease.

DISCUSSION

Dr. Allan Eustis (New Orleans): I recall when Dr. Silverman first brought out the prevalence and danger of bacillary dysentery. The majority of the profession did not take it seriously. But I am glad that his original prediction, although sorry for the people, has been vindicated.

I cannot add anything to what Dr. Silverman has so fully gone into, nor am I in a position to do so. I would like to consider certain points he mentioned in his paper and probably dilate on certain features he did not have time to take up.

First, all those of you in the general profession, I cannot too thoroughly impress upon you the absence of diarrhea in many of these cases which I have referred to Dr. Silverman and which he has treated successfully. They may have vague pain and go on for years undiagnosed, unless you have a culture made, and it requires a certain amount of knowledge to do that.

Now, where is the source of this infection? I have only recently recovered from an attack of amebiasis, under Dr. Silverman's treatment, and the only possible source that I could consider for this amebiasis was in lettuce. I have always been a big lettuce eater. Dr. Faust called our attention many years ago to the danger of eating lettuce. Most of it is grown by Orientals who fertilize the vegetables with human excreta. Most of our lettuce comes from California where the farming is done by Japanese. Now, Dr. Silverman has not allowed his patients to eat lettuce for many years.

The complications he brought out are most interesting to those in general practice, and I agree that a great many of these patients may be wrongly operated upon for an acute surgical abdomen.

There were a few points that he did not have time to bring out, and one is the frequency of regional ileitis that we hear so much of now. It is only in the last five or six years that cases are being reported. Is it due to the fact that there is more widespread infection of the bowel with *B. dysenteriae?* There is no reason why the organisms should not affect the ileum as well as the colon.

Dr. Silverman did not say anything about the treatment, but I think those of you in the rural districts may be interested. Dr. Silverman's treatment consists of making an autogenous vaccine, with the aid of Dr. Friedrichs, and he desensitizes the patients with small doses in increasing amounts of vaccine. I recall one case of a former teacher, whom I treated for recurrent attacks of diarrhea fifteen to twenty years. Finally, Dr. Silverman found the Shiga organism and desensitized him with complete cure of the gastrointestinal symptoms. Finally, he died of cardiac disease at 80 years of age.

It is well to consider the diet in these cases. Dr. Silverman did not mention it, but his printed paper says to put the patients on a soluble diet. I believe that is very important, while treating these patients. I do not mean to keep them continually on a soluble diet, but in the acute stage put them on a non-residue diet. In addition to this, all of these organisms are proteolytic organisms, live on proteins and will give the highest indican reaction in the urine. So that also a low protein diet is indicated.

It is not necessary for me to mention the necessity of giving atropine or belladonna to relieve spasm, but I think the most important thing is to make a thorough examination before operation is resorted to.

Dr. C. C. de Gravelles (New Iberia): I think that few of us in the rural districts really appreciate the seriousness of this condition as we have it. I think few of us go to the trouble of completing the diagnosis on these things. I will plead guilty, as many of my confrères will, to having treated these patients off and on without ever trying to get to the root and see what the etiologic factor was. This is becoming too widespread throughout the State, and it behooves each and every one in the rural districts when we see these cases to have the stools examined. With the present set-up all over the State today, this can easily be done. A few years ago, it was rather difficult. We had to collect these specimens and send them in to some center. But with the health units throughout the State, they will take care of this.

Recently, in my section of the country, we had quite an outbreak. A friend of mine had 75 pounds of sausage sent in from another state, and he apportioned it out among his friends. Twenty-four hours later, we had 12 cases of bacillary dysentery,

some very serious. I happened to have one of the cases, and promptly had the health unit make an examination and they found it was the Shiga infection, and I understand the other cases were Shiga infection. So this thing is widespread. It is serious and it is up to us especially in the rural districts to follow the case through when we get a case of either of the dysenteries, and make the proper diagnosis, and not simply give the patients a little bismuth. Let us try to follow these cases through and see, if possible, if we cannot eradicate this serious condition threatening the State today.

Dr. E. W. Kroll (San Francisco, California): I am a stranger in your midst and have been enjoying your Convention but have arisen to defend what was said here about our California lettuce plantations being fertilized by human excreta. I simply cannot let that pass. As you probably know, our lettuce is, or rather has been largely grown by the Japanese. However, that is all stopped now as the Japanese are being interned. As far as fertilization by human excreta is concerned, I can assure you that you can come to California and eat all the lettuce you want with impunity as our State Board of Health rigidly supervises all of this sort of thing and our Health Laws protect the consumer.

It is true that we do have some amebic dysentery there from time to time, as probably every state in the Union has. San Francisco, being a gateway to the Orient, undoubtedly has many of these cases slip through that way. However, the incidence of amebiasis is very low. Had I realized that this paper was going to be given I would have looked up the statistics, but I know that it is low because I have practiced in San Francisco for 30 years and there never has been any epidemic of amebiasis in all that time.

Dr. Morris Shushan (New Orleans): Dr. Silverman has certainly been a pioneer in the field of bacillary dysentery, and it is due largely to his efforts in this community that we are conscious of and looking for this infection.

He has not had time today to stress the methods of diagnosis which are employed, especially in the chronic cases. Acute epidemics that Dr. de Gravelles mentioned are relatively easy to recognize provided that stool cultures are made. In the chronic case, the diagnosis is often a bit more difficult. The agglutination tests for bacillary dysentery are not standardized sufficiently at the present time. There is a great deal of difference in the way the tests are performed by the various laboratories. For example, in one local institution, about six or seven strains of Flexner are used in performing the agglutination test, while other laboratories will use one strain, and if that is negative the test is negative for bacillary dysentery. In addition, there is still no uniformity between the various laboratories as to whether the tests should be performed by macroscopic or microscopic technic.

Another point that I have noticed in trying to check the results from various places, is the fact that the prozone phenomenon enters into the test. It has been shown in some cases that if you have a negative titer in low dilutions, the test may be negative, but if the blood is diluted up a positive report is obtained. Certain laboratories will only run a 1:40 dilution and state the blood is negative for bacillary dysentery. So far as the agglutination test is concerned, I think further emphasis should be adopted, and also, more than one strain, especially of the Flexner type, should be used in performing the test.

Some years ago I began to skin test every patient in whom I suspected chronic bacillary dysentery, and frequently the results in a tuberculin type of reaction run roughly comparable with the agglutination test, so that I now perform the skin tests along with the agglutination test in looking for these chronic cases.

One other point deserves mention. Dr. Silverman has done much work in the question of stool cultures. One hundred per cent of these chronic cases do not give positive stool cultures. Probably we should repeat the cultures more frequently than we do. I would like to ask Dr. Silverman roughly in what percentage he finds positive culture in chronic cases.

Dr. William H. Harris (New Orleans): I cannot refrain from discussing the praiseworthy work of Dr. Silverman in this field. Naturally, from the title of his paper, "The Increasing Incidence and Complications of Chronic Bacillary Dysentery," we could not have expected him to go into all allied factors. It so happened that it was my good fortune to observe years back the inauguration of Dr. Silverman's work. It came about in this way: He was confronted with a great many cases in which the etiologic factor could not be established, particularly in regard to a suggestive amebic type. He knew that search for other causal agents was necessary. We, in the Department of Bacteriology at Tulane had been asked by Dr. Simon Flexner of the Rockefeller Institute to make an investigation of the prevalence of bacillary dysentery in the area. We were so interested in other problems that we failed to undertake this study. It was Dr. Silverman's realization that something had to be done that really precipitated this kind of investigation. His splendid work and publications in this field, as well as upon other experimental observations, brought recognition and credit to our community.

Dr. Silverman has stressed the fact that the bowel lesion is not always of a superficial character. My realization of this fact was obtained from a monograph of such studies made in the tropics some years ago, in which the lesions of the bowel in virulent and neglected cases of bacillary dysentery were described. The illustrations were most striking. I did not realize that bacillary dysentery could produce such extensive and deeply ulcerated

lesions in the bowel. Dr. Silverman has emphasized such occurrences in his own experience wherein even perforation has eventuated.

I think that there have been efforts made to control the spread and check the ravages, but notwithstanding, the disease has gained headway and has revealed augmented virulence.

In conclusion, there is only one point which I might add, that is, we must be conscious of the possibility of two etiological agents. I recall years ago Dr. Maurice Couret, during studies upon the cultivation of ameba, observed in quite a few instances of amebic dysentery that did not get well after proper treatments that *B. dysenteriae* was also present. The occasional concomitant occurrence of bacillary and amebic dysentery must be realized. In Chicago during that fearful scourge there were observed both separate, that is, amebic or bacillary forms, as well as mixed types.

I feel that Dr. Silverman many years ago placed in the laps of those of us doing bacteriology and pathology, this problem, which should have originated with us. He deserves every praise and commendation not only for his scientific achievements but for the practical benefits by those who are unfortunately afflicted with this fearful disease.

It seems quite evident that—"reversing the peristalsis"—"I came to praise Caesar and not to bury him."

Dr. Andrew V. Friedrichs (New Orleans): Both Dr. Harris and I were instrumental in having carried out a great deal of this work with Dr. Silverman. I will discuss only the bacteriologic side. It is not included in the title of the paper but I think it is pertinent and should be of interest.

We have found that, primarily, one stool examination is not sufficient to rule out the disease, provided, of course, the plating is negative. Two or three surveys are made on each patient. When Dr. Silverman has a patient wherein he suspects dysentery, and, as he brought out in his paper, practically every patient he sees has some indefinite bowel disturbance, a bacteriologic survey of that stool is made. The material for plating is prepared, a proctoscopic examination done, and within less than five minutes after the material has been removed from the bowel, it is plated. The important factor is that we know that the colon bacillus is present in every individual bowel and, if left alone, will outgrow any pathogenic organism which may be present. This time factor is of extreme importance.

In these low grade chronic cases, we may find only one colony of true dysentery present. There will be hundreds of colon bacilli and, of course, isolating that one colony is sufficient. The agglutination tests are carried out, as the doctor suggested, in varying dilutions, but we have found that the agglutination tests do not coincide with the bacteriologic findings. In many instances, we obtain a negative agglutination test with the stock culture and with the bacteriologic survey, we will isolate one of the group of dysentery organisms. We must remember that the agglutination tests are due to the presence of antibodies in the individual's blood stream. If an individual's resistance is low, there are few antibodies present, the disease is able to carry on and in this instance, we obtain negative agglutination tests. We cannot rule out the disease on agglutinations alone. I can readily appreciate that you men in the country, as Dr. de Gravelles brought out, do not have the facilities for this work and that the patient should be sent to the bacteriologist and specimens should be obtained with the proctoscope.

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VITAMIN DEFICIENCY STATES IN LOUISIANA*

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NEW ORLEANS

Continued studies in the field of nutritional diseases, particularly those due to inadequate vitamin intake or utilization, have demonstrated that varying degrees of deficiency occur, ranging from sub-clinical unsaturation, to clinically recognizable specific deficiency disease, to death. The complete study of a given vitamin deficiency therefore requires data on laboratory studies for the recognition of the incidence of subclinical unsaturation, morbidity studies to determine the incidence of clinical diseases, and mortality studies. All this material is as yet not available. Some of it has been accumulating for many years, but some is just beginning to emerge. The importance of mortality studies is limited but serves to allocate a disease geographically and with reference to the killing power of other diseases. Only a general idea of the frequency of a disease can be obtained from its mortality rate.

Pellagra has the greatest killing power of all the vitamin deficiency diseases. Louisiana is included in the southeastern group of states known as the "Pellagra States" (table 1). It is relatively low in the mor-

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TABLE 1
MORTALITY RATES FOR PELLAGRA—1940

	Total		Colored		White	
	State	Rate	State	Rate	State	Rate
1.	Alabama	8.7	Alabama	12.8	Georgia	7.0
2.	Georgia	8.4	Georgia	11.3	Alabama	6.6
3.	S. Carolina	8.0′	Mississippi	11.2	N. Carolina	5.1
4.	Mississippi	7.8	Arkansas	11.0	S. Carolina	5.4′
5.	Arkansas	5.4	S. Carolina	11.2′	Mississippi	4.5
6.	Tennessee	5.3′	Florida	8.0	Tennessee	4.9′
7.	N. Carolina	4.9	*LOUISIANA*	*6.9*	Arkansas	3.5
8.	Florida	4.1	Tennessee	7.3′	Florida	2.5
9.	*LOUISIANA*	*3.2*	Oklahoma	4.6	Oklahoma	2.3
10.	Oklahoma	2.5	N. Carolina	4.1	Kentucky	2.2
11.	Kentucky	2.1	Virginia	2.6′	Virginia	2.3′
12.	Virginia	2.4′	Kentucky	1.4	*LOUISIANA*	*1.1*

′ 1939 rate, 1940 rates not available.

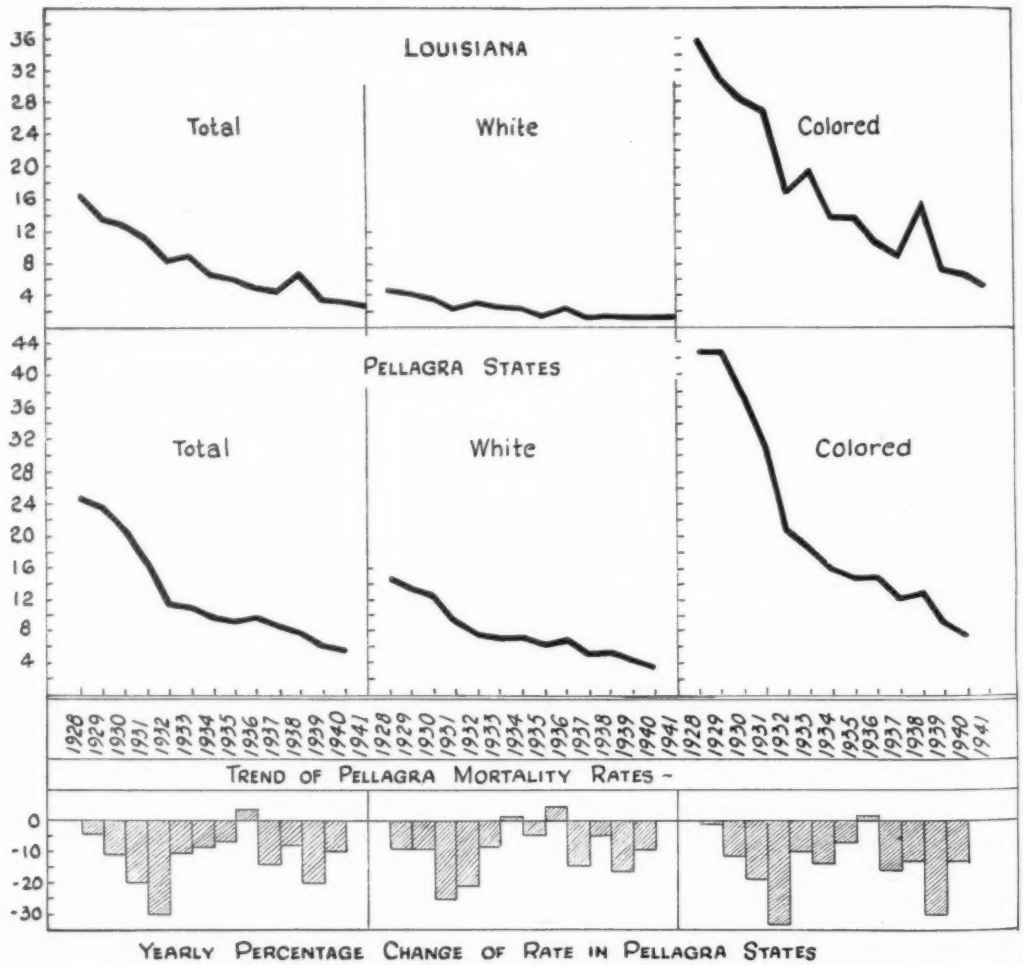

Fig. 1

tality list and has maintained this same position from year to year. A study of the average pellagra mortality[1] for this group of states shows that up to 1928 the death rate was progressively climbing. However, between 1927 and 1930 the rate for each state had reached its peak. From this time up to 1932 there was a fairly rapid decrease (fig. 1), with a pause in 1932 and 1933, followed by a further gradual decline. The same trend of the rate for pellagra occurred in Louisiana, decreasing from 17.7 per 100,000 population in 1927 to 2.6 in 1941, or over 85 per cent. The absolute decrease was greater in the case of the colored population, from 41 to 5.4, than for white, from 4.7 to 1.1. The relative decline was similar for both white and colored groups; however the changes occurred from one to two years later in the colored.

Such a complete reversal of trend as occurred in the mortality rate in pellagra in 1928 must have been due to some crucial change in one or several factors. It is doubtful whether either economic or social conditions affecting this group changed sufficiently at that time to explain it. However, in 1924 Goldberger[2a-b] and his coworkers began the publication of a series of papers on the dietary value of fresh meat, milk and yeast in the treatment and prevention of pellagra. In 1930 he and Sebrell[2c] published their observations on the value of Minot's liver extract in treating black tongue in dogs; and by 1933 its use in human pellagra was extensive and the results fully attested in the literature.

A discovery fully as important was announced by Elvejhem[3] and others in 1937, on the role of nicotinic acid in the therapy of pellagra, so it would appear that we might expect a much further reduction of the mortality rate from this disease. However, it is obvious that up to 1940 or 1941 (fig. 1) there is only a suggestion that such a change might occur.

There are several things to consider in explaining these changes or lack of expected changes. In the first place, and probably most significant, is the fact that as long as a large reservoir of the disease exists the effects of even specific therapeutic measures on mortality rates will be limited. Secondly, pellagra has the inherent tendency to become chronic or recurrent as long as the nutritional background upon which it develops is not improved. For instance, 21.5 per cent of our cases gave a history of chronic or recurrent evidence of the disease over a period of four months to seven years. These two features of pellagra, the continual addition of new cases and the chronicity or recurrence of a large precentage of the old ones, emphasize the importance of instituting preventive measures. A third factor which undoubtedly has delayed the decrease in mortality is the generally recognized lag between the introduction of a therapeutic agent and the spread of its application. Eighteen per cent of the deaths from this disease were reported from the general hospitals of the state in 1940. This might mean that only 18 per cent of all pellagrins are seen and treated in hospitals. However, a consideration of the death rates for two of them over the past five years (table 2) shows what might be expected from the introduction of such a specific

TABLE 2

PELLAGRA ADMISSIONS AND PER CENT OF DEATHS
CHARITY HOSPITALS OF SHREVEPORT AND NEW ORLEANS
1937 THROUGH 1941

	1937		1938		1939		1940		1941	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Shreveport	44	11(25%)	86	12(14%)	82	9(11%)	27	2(7.4%)	23	0
New Orleans....	28	6(21%)	19	9(47%)	70	9(13%)	36	2(5.5%)	35	3(8.6%)
Total	72	17(23%)	105	21(20%)	152	18(12%)	63	4(6.3%)	58	3(5.2%)

Pellagra Mortality Rate per 100,000 Population in Louisiana
Bureau of Census Vital Statistics

1937	1938	1939	1940
4.4	6.5	3.4	3.2

Percentage change between 1937 and 1940 rates—minus 27.3%

agent as nicotinic acid. The figures from Shreveport Charity Hospital, generously supplied by Dr. Edgar Galloway,[4] report 262 cases of pellagra (2.2 per 1000 admissions) and a decline in the number of deaths from 25 per cent in 1937 to zero in 1941. Our own figures at the Charity Hospital of New Orleans are little less dramatic. There were 188 cases admitted (.63 per 1000) and there was a decrease in the number of deaths from 21.4 per cent in 1937 and 47.4 per cent in 1938 to 5.5 per cent in 1940 and 8.6 per cent in 1941. The averages for the two hospitals from 1937 to 1940 show a change of from 23.6 to 6.3 per cent, a decrease of over 73 per cent. The rate for the state as a whole, calculated from the Bureau of Census figures, decreased only 27.3 per cent, which is less than the decrease of 33.7 per cent for the previous four year period 1934-1937.

There is no longer any doubt of the value of nicotinic acid in the treatment of pellagra, and one should not hesitate to use it in full therapeutic doses, orally, intramuscularly or intravenously as required. Its value as a therapeutic test in doubtful cases is indicated by the increasing number of diagnoses of pellagra without dermatitis and with or without psychosis noted since its use, from an average of 17.6 per cent of all pellagra cases in 1937 and 1938 to 25 per cent in 1939, 1940 and 1941.

A study of these cases brings out another significant fact (table 3), that the occurrence per month of pellagra with dermatitis, acute or chronic, in the full summer months of May, June, July, August and September is related as three to two for the months of the rest of the year. On the other hand, pellagra without dermatitis occurred twice as frequently in the winter months as in the summer. It is obvious that one must be on guard especially in the fall, winter and spring for pellagra without dermatitis.

TABLE 3
MONTHLY INCIDENCE OF PELLAGRA WITH AND WITHOUT DERMATITIS
CHARITY HOSPITAL OF NEW ORLEANS, 1937-1941

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Pellagra with dermatitis	1937.....	1	1	0	2	0	4	2	2	2	4	5	2
	1938.....	1	2	1	0	1	0	2	1	2	3	1	0
	1939.....	3	2	3	3	6	2	7	8	9	3	2	4
	1940.....	3	0	2	3	6	0	1	1	4	1	1	3
	1941.....	1	2	0	2	3	1	1	3	5	1	5	2
	Total ..	9	7	6	10	16	7	13	15	22	12	14	11
			68 9.7/month							74 15/month			
						ratio 2:3							
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Pellagra sine pellagra	1937.....	1	0	0	0	1	0	1	0	1	0	0	0
	1938.....	0	1	2	0	1	0	0	0	0	0	0	0
	1939.....	1	4	0	4	2	2	1	2	2	0	0	0
	1940.....	1	1	1	1	1	0	2	0	1	0	2	1
	1941.....	1	1	0	0	0	1	1	0	0	2	0	1
	Total ..	4	7	3	5	5	3	5	2	4	2	2	2
			32 4.6/month							12 2.4/month			
						ratio 2:1							

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The geographic distribution of pellagra deaths in Louisiana is of interest. It can be illustrated by allocating the deaths by place of residence and calculating the rates of each parish (fig. 2). This has been done with figures supplied by the Louisiana State Board of Health. The 129 deaths attributed to pellagra in 1940 and 1941 occurred in 42 of the 64 parishes. There are two foci, one throughout the northern par-

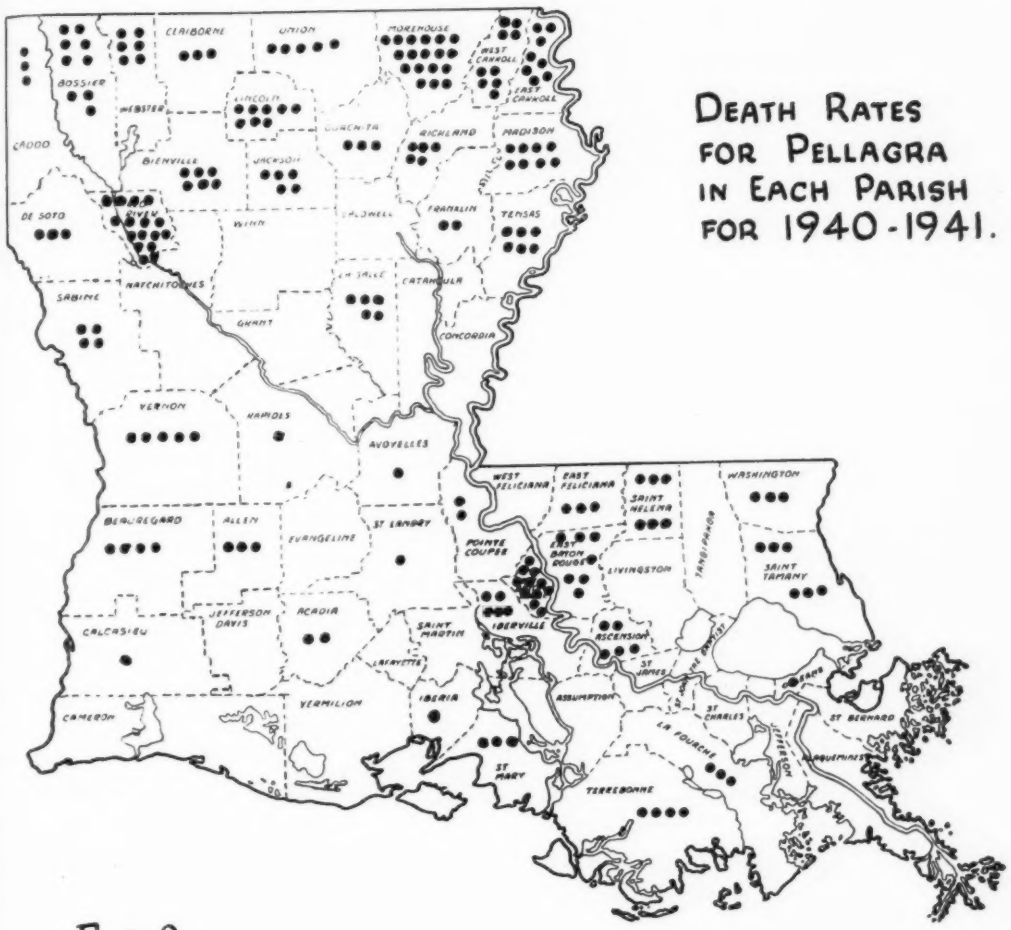

FIG. 2

ishes, and the second in the southeastern section extending from East and West Baton Rouge Parishes eastward. Presumably this distribution of the mortality of pellagra indicates to some extent the frequency of the disease in the various regions of Louisiana.

DEFICIENCY DISEASES AT CHARITY HOSPITAL

The experience at Charity Hospital of New Orleans with reference to all the vitamin deficiency diseases is tabulated in table 4. There were 388 patients, the study of whose records allowed definite confirmation of the diagnosis on the basis of clinical description and/or laboratory and therapeutic results. These cases occurred among 56,761 medical admissions. Pellagra leads both in frequency and as the cause of death. Of the 38 deaths, 76 per cent were caused by pellagra. The close association of the various components of the vitamin B complex is evident from the fact that 20 per cent of the pellagra cases were mixed deficiencies of nicotinic acid, thiamin and/or riboflavin. This probably represents a minimum of multiple deficiencies in pellagra. Goldsmith[5] has shown by laboratory methods that these patients are frequently deficient in vitamin C also. Only one of our pellagra patients had a clinical diagnosis of scurvy, but there was a very frequent association of scurvy with rickets in infants and children.

The role of alcohol in the pathogenesis

TABLE 4

INCIDENCE OF CLINICAL VITAMIN DEFICIENCY STATES IN CHARITY HOSPITAL OF NEW ORLEANS 1937-1941

	1937	1938	1939	1940	1941	Total	Deaths	Per Cent Deaths
Pellagra—non-alcoholic	22	13	38	19	19	111	18	16.2
alcoholic	0	1	2	1	1	5	2	40.0
Pellagra with neuritis—non-alcoholic	2	1	7	2	4	16	3	18.7
alcoholic	0	0	1	0	2	3	1	33.3
Pellagra with ariboflavinosis	0	0	2	3	1	6	0	00.0
Pellagra with neuritis and ariboflavinosis	0	0	2	0	1	3	0	00.0
Pellagra sine pellagra—non-alcoholic	3	2	13	9	5	32	4	12.5
alcoholic	0	1	1	1	0	3	1	33.3
Pellagra sine pellagra with neuritis	1	1	4	1	2	9	0	00.0
Polyneuritis—non-alcoholic	8	3	21	15	12	60	0	00.0
alcoholic	2	3	12	10	8	35	1	03.0
Ariboflavinosis	0	0	3	1	2	6	0	00.0
Rickets	7	5	16	21	18	67	8	12.0
Scurvy	3	3	5	11	10	32	....	.....
Total						388	38	10%

of pellagra is relatively minor here compared to primary nutritional deficiency. However, its influence on mortality is evident. In this group 36.4 per cent died compared to 14.9 per cent in non-alcoholic pellagra. Polyneuritis conditioned by the effects of alcohol was considered due to thiamin deficiency only if a prompt therapeutic response occurred. The rest of the group of polyneuritis were uncomplicated by diabetes, pregnancy, or other conditionos.

SUMMARY

The whole gamut of nutritional deficiency is a problem in public health and prevention. Disability from vitamin A, D, and C deficiencies arises mainly in the period of growth of the child. Prevention must be carried out by the physician and parents educated in the use of substances containing these vitamins. In the case of thiamin, nicotinic acid and riboflavin the problem is essentially one in adults. With the sole exception of thiamin, which is present in limited quantities in most foods, food fortification is mainly a stop-gap procedure but an important one. The real roots of the problem are low cash income, poor eating habits, or poor use of the soil. These are the common denominators of all nutritional diseases. The conclusion is inescapable that their correction requires a directed and unified effort of agencies and groups competent to deal with them, and not by the medical profession alone.

REFERENCES

1. Bureau of the Census—Vital Statistics.

2. a. Goldberger, J., and Tanner, W. F.: A study of the treatment and prevention of pellagra. Experiments showing the value of fresh meat and milk, Pub. Health Rep., 39:87, 1924.

b. Goldberger, J., and Tanner, W. F.: A study of the pellagra preventive action of brewers' yeast, Pub. Health Rep., 40:54, 1925.

c. Goldberger, J., and Sebrell, W. H.: The blacktongue-preventive value of Minot's liver extract, Pub. Health Rep., 45:3064, 1930.

3. Elvejhem, C. A., Madden, R. J., Strong, F. M., and Wooley, D. W.: Relation of nicotinic acid and nicotinic acid amide to canine blacktongue, J. A. Chem. Soc., 59:1767, 1937.

4. Personal communication.

5. Goldsmith, G. A., Ogaard, A. T., and Gowe, D. F.: Vitamin C nutrition in pellagra, Am. J. Med. Sci., 200:244, 1940.

DISCUSSION

Dr. George W. McCoy (New Orleans): Dr. Lowe's very excellent paper illustrates how we make progress in public health. I was especially glad that he mentioned Dr. Joseph Goldberger's brilliant investigations which began about 1915 and which led to the solution of the pellagra problem; research must precede successful application in preventive medicine.

Those of us especially interested in the public health field have been thinking too long in terms of deficiency disease, only in very recent years have begun to think of nutrition in its broader aspects. The public health movement has entered this field and many health departments have a nutritional program and nutritional experts. And why should it not be so; if it is admitted that it is a legitimate function of government, general, state or local, to prevent communicable disease, for example, typhoid fever and diphtheria, why should not the same agency be interested in the prevention of pellagra,

scurvy, rickets and other nutritional deficiency diseases? The answer of course is that it should be.

There are some enthusiasts who, I am sure, lay too much stress on nutritional conditions, but we do not need to be of this group to realize that the question is a very important one. There are a number of factors in the nutrition problem, especially under-nutrition. First, and by far the most important, is the economic factor. As one authority puts it, "Nutrition has moved from the field of physiology to that of economics." Another one says there is doubtless a "close association between low incomes and deficient diets." To put it baldly most malnutrition is due to the lack of resources to provide an adequate diet. Government interest in this subject began to take a definite form in the latter days of the Hoover administration, when it was realized that much of the population of the country was in dire economic straits and undernourished as a result of the then prevailing depression, and a modest appropriation was made by Congress. The government program has been carried out by direct money allowances, by distribution of surpluses, by Works Progress Administration projects and funds. In another direction a start has been made by the use of food stamps, penny milk, and free school lunches.

The question is asked in the Bible as to whether I am my brother's keeper. The answer now in this country is definitely in the affirmative. Again let me say that the basic factor in nutritional deficiency disorders is a low income. There are other factors; for example, education as to the proper use of what people have and also fixed dietary habits which may have to be modified. The latter is well illustrated by our reluctance to switch over from white bread to whole wheat bread; here we have made a compromise by adopting fortified white bread which contains added vitamins and minerals and which, I am told, now supplies nearly one-half of the commercial demand for white bread. Owing to long fixed habits the average American consumer definitely does not want whole wheat bread, although it might be much better for him.

Now let us see what war has done elsewhere in relation to nutrition. By way of illustration I give you the following figures: It is reported that the ration in Belgium, Holland and unoccupied France amounts to 1400-1500 calories per day and that the figure for Spain is 800-900 calories. Of course, I realize that calories do not tell the whole story but I am sure that we will all agree that these are all grossly inadequate diets.

Our present interest in this subject is due not to altruism in Washington or elsewhere, but to the need of effective manpower. General Hershey is quoted as saying that of the selective service examinations "Perhaps one-third of the rejections were due either directly or indirectly to nutritional deficiencies."

From another source in one of the papers presented at this meeting late last evening when most of you were not present, we learned that there were 900,000 rejections among the first two million men examined, just 45 per cent. If one-third of these rejections were for nutritional conditions that would mean about 300,000 men. In other words about 20 divisions, and I leave it to you to decide whether, if we had 20 more divisions ready for military use at this time, they might not be of great value.

I understand that the Federal Security Agency has set up nutritional committees and boards in every state in the Union and I feel certain that as a result of the interest and agitation of this subject a better dietary for the American people ought to be brought about. The Secretary of Agriculture has said "Food will win the war and write the peace."

Dr. Charles T. Stone (Galveston, Texas): About 12 years ago, I had lunch at the Cosmos Club in Washington with Dr. Goldberger. We had an ordinary American luncheon, and Dr. Goldberger said as we began to eat that if every American ate food such as this there would not be any pellagra. Now, we know that pellagra today is largely a vanishing disease, and we know why it is a vanishing disease. It is so because in many ways we have come to understand its fundamental nature. But I wonder if we know as much as we think we know about this nutritional or deficiency disease?

I suppose most of you unconstructed Rebels and some of you Yankees who came down later read that very interesting book, "Gone with the Wind," and you will recall that along toward the latter part of the book, Miss Mitchell said that after the war, in the so-called reconstruction days, around Atlanta, tuberculosis became very prevalent in previously rich families, and pellagra, which had theretofore been known only among negroes and poor whites, began to appear in Atlanta's best families. Well, anyone who knows the history of the South in the carpetbag period knows that despite the tremendous deficiency of fundamental food stuffs, as far as the record goes, pellagra did not exist. To me, that has been always one of the mysteries of this disease. There could not have been, as I see it, any more striking food deficiency in any place, at any time, in any section, than existed in the South at that time. Yet, until George Searcy, who was an interne at the Alabama State Hospital for the Insane, inspired by the writings of certain Spanish physicians, described pellagra in the institution where he worked, in 1907, was pellagra recognized as an American disease at all. Now, I have talked with a good many people who were conversant with the situation in 1907, and they feel very largely that looking backward, they could possibly detect an occasional instance of pellagra prior to Searcy's description of it in this country, and yet they are almost unanimous in the opinion that it was extremely rare, if it existed at all. I would be extremely obliged if Dr. McCoy

or some of the men who were familiar with the difficulties that existed in the South after the Civil War could supply the information that would suffice to fill the gap in our knowledge in that respect.

I think that undoubtedly the fact that Dr. Goldberger was successful in proving canine blacktongue and human pellagra were identical did much to enable us to study pellagra in a scientific way, very much as we study infectious diseases now. I think that the knowledge he developed in his laboratories, that certain types of foods would prevent the development of blacktongue in dogs was indeed helpful in developing a rational therapy for the human being, but Elvehjem's discovery of nicotinic acid marks the beginning of modern clinical therapeusis of the disease. But as Dr. Lowe pointed out the incidence is steadily down, and has been so for many years even before the newer knowledge of pellagra was developed.

And while I cannot subscribe to all of the present day socialistic activities of our government, I am in accord with those who believe that the people who are unable to supply themselves with an adequate food supply should have it furnished to them by governmental agencies. Such a practice is both humane and economically profitable.

Dr. Roland Young (Covington, La.): Since alcohol is indulged in so much now, I thought it might be timely to mention the occurrence of vitamin deficiency in alcoholism.

The alcoholic patient, especially the periodic type who gets on prolonged debauches will sometimes be found with multiple neuritis and Korsakoff's psychosis. These cases will often go about two weeks without appreciable food. This has been shown definitely to be due to vitamin deficiency. Along with that I may mention that reliable literature out of Boston has shown that even though the patient is a chronic alcoholic, though of sufficient saturation or degree, may also develop some condition as beriberi and my experience confirms this too. It is thought that alcohol may retard, if not actually stop the metabolism of these vitamins. Perhaps somewhat analogous to this, morphine slows the basal metabolic rate either by depression of the thyroid or in retarding the oxidation of its secretion. This is definitely an established fact found in our experience, both by clinical evidence and metabolic checks.

Dr. R. C. Lowe (In closing): I am very much pleased to have had Dr. McCoy and Dr. Stone say some of the things I would like to have included in the short time I had. But their remarks have completed to a greater extent the picture of pellagra that we must hold with us in order to reduce the mortality and ultimately eliminate pellagra from the United States.

FRACTURES ABOUT THE ANKLE JOINT*

RUFUS H. ALLDREDGE, M. D.†
NEW ORLEANS

The frequency with which fractures occur at the ankle joint and the importance of treatment of these injuries is well established. Despite the importance of fractures and other injuries about the ankle, amazingly little has been written about them in contrast to the amount of material which has been written about some other joint fractures.

This presentation is based on a three year study of 56 cases of ankle injuries which require hospitalization. Investigation of the physiologic and anatomic aspects of the ankle has been of great help in understanding the mechanism of injury as well as in carrying out more adequate diagnosis and treatment. A thorough understanding of the mechanism of the injury and the pathology present in each case is more important than the choice of the method of treatment to be used.

ANATOMY OF THE ANKLE

The important ligaments of the ankle joint are as follows (fig. 1): (1) the anterior malleolar; (2) the posterior malleolar; (3) the interosseus ligament and the interosseus membrane; (4) the exter-

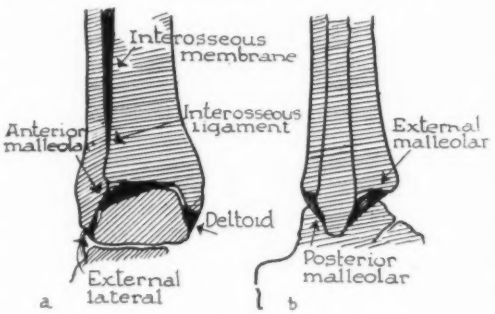

Fig. 1

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 30, 1942.

†From the Division of Orthopedic Surgery, Department of Surgery, Tulane Medical School and Charity Hospital.

nal lateral ligament; (5) the deltoid ligament.

The deltoid and external lateral ligaments stabilize the astragalus in the mortice. The anterior and posterior malleolar and interosseus ligaments and membrane stabilize the fibula to the tibia and hold the ankle mortice together (fig. 1).

The anterior dorsal joint surface of the astragalus is 25 per cent wider than the posterior surface, and for this reason the ankle is more unstable when the food is plantar flexed than when the foot is dorsi-flexed. When the foot is dorsi-flexed the wider part of the astragalus comes up into the mortice and forces the fibula slightly outward and backward so that the mortice can accommodate the wider anterior part of the astragalus.

MECHANISM OF ANKLE FRACTURES

Fractures of the ankle occur by: (1) external rotation; (2) abduction; (3) adduction; (4) compression. Only the first three types of fractures will be considered in this discussion, as they are the most common.

FRACTURES BY EXTERNAL ROTATION

Fractures caused by external rotation may occur when the leg is fixed and the foot is externally rotated, (fig. 2-a), or

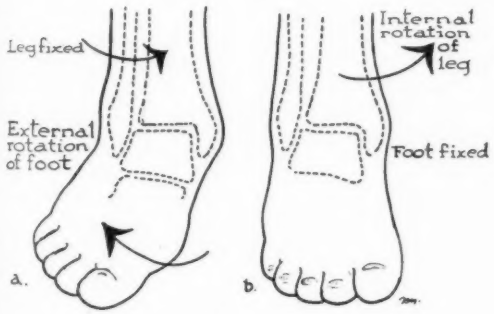

Fig. 2

when the foot is fixed and the leg is internally rotated (fig. 2-b).

When an external rotation injury takes place at the ankle the following sequence of events, which may be interrupted at any point, occurs as the force is continued.

1. Rupture of the anterior malleolar ligament (fig. 3-a).

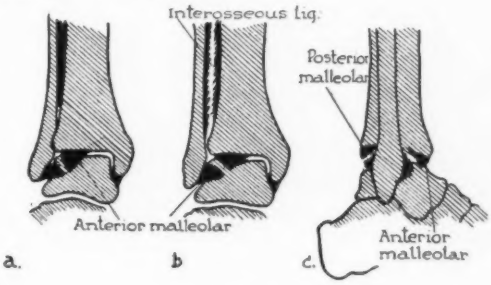

Fig. 3

2. Rupture of the interosseus ligament and interosseus membrane (fig. 3-b).

3. Rupture of the posterior malleolar ligament (fig. 3-c).

4. Rupture of the deltoid ligament (fig. 4-a).

5. Avulsion of the lateral margin of the tibia may take the place of the rupture of the ligament. This avulsed fragment may become interposed and wedged between the tibia and fibula in an abnormal manner (fig. 4-b).

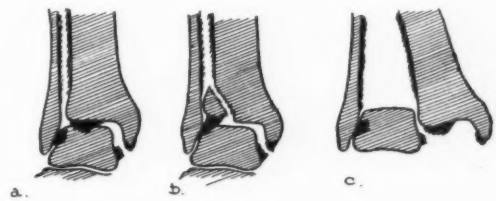

Fig. 4

6. The ankle mortice may be widened after the deltoid has given away to such an extent that the astragalus becomes displaced upward between the tibia and fibula (fig. 4-c).

7. The internal malleolus may be avulsed by the deltoid ligament if the deltoid fails to rupture (fig. 5-a).

8. The fibula fractures obliquely in an anteroposterior direction. It usually fractures low down, just above the malleolus, but may occur anywhere including the upper third. Fracture of the fibula does not take place until the deltoid has

ruptured and the tibio-fibular ligaments have ruptured, giving rise to a tibio-fibular diastasis (fig. 5-b).

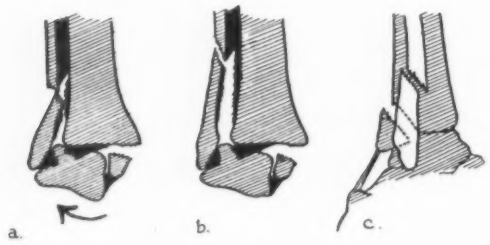

Fig. 5

9. The posterior articular margin of the tibia may be fractured and displaced backward and upward by the forward force of the tibia on the astragalus at the time of the injury. When both malleoli are fractured this fracture may be present. The term tri-malleolor fracture has been used to describe the injury. This term is not adequate because it fails to mention the ligamentous injury which is often more important than the bone injury itself. If the posterior marginal fragment is small, it is insignificant. If it involves as much as a third of the distal end of the fibula it is a most serious injury (fig. 5-c).

MECHANISM OF ABDUCTION FRACTURES

Abduction fractures occur when the foot is forcibly abducted on the fixed leg (fig. 6-a), when the leg is adducted on the fixed

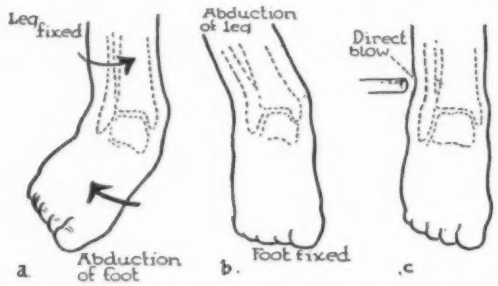

Fig. 6

foot (fig. 6-b), or when a direct blow is struck over the lateral aspect of the leg when the foot is fixed (fig. 6-c).

The following sequence of events occurs when abduction in the above manner takes place at the ankle:

1. The deltoid ligament is ruptured (fig. 7-a).

2. The internal malleolus may be avulsed instead of rupture of the deltoid ligament (fig. 7-b).

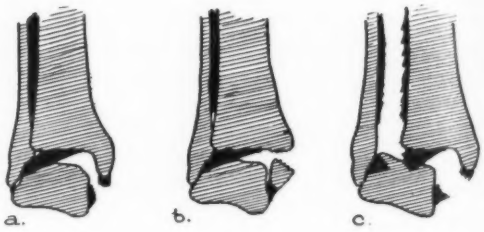

Fig. 7

3. The anterior and posterior ligaments are ruptured and at the same time the interosseus ligament and the interosseus membrane are ruptured, producing a tibio-fibular diastasis (fig. 7-c).

4. The fibula is fractured transversely somewhere in the lower third (fig. 8-a).

5. Fracture of the internal malleolus combined with rupture of the anterior and posterior malleolar ligaments and fracture of the lower third of the fibula is the commonest form of abduction injury and is referred to as Pott's fracture (fig. 8-b).

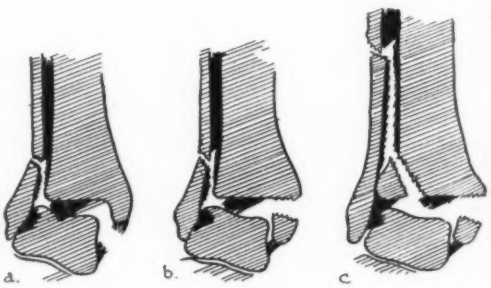

Fig. 8

6. The lateral margin of the tibia may be avulsed and takes the place of rupture of the malleolar and interosseus ligaments (fig. 8-c).

7. When the deltoid ligament is ruptured the anterior and posterior malleolar and interosseus ligament and membrane are also

ruptured: a pure ligamentous injury may result with no fracture whatsoever. Tibio-fibular diastasis is the outstanding component of the injury (fig. 9-a).

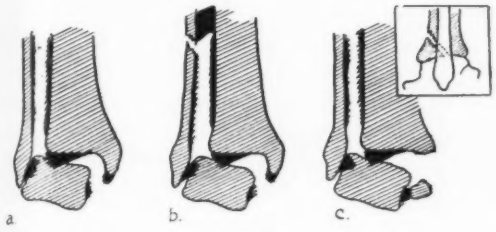

Fig. 9

8. The above injuries may be accompanied by a fracture usually in the lower third of the fibula (fig. 9-b).

9. Fracture of the internal malleolus, instead of rupture of the deltoid, and posterior tibial marginal fracture is another combination of abduction injury (fig. 9-c).

MECHANISM OF ADDUCTION FRACTURES

Adduction fractures occur when the foot is forcibly adducted and inverted (fig. 10).

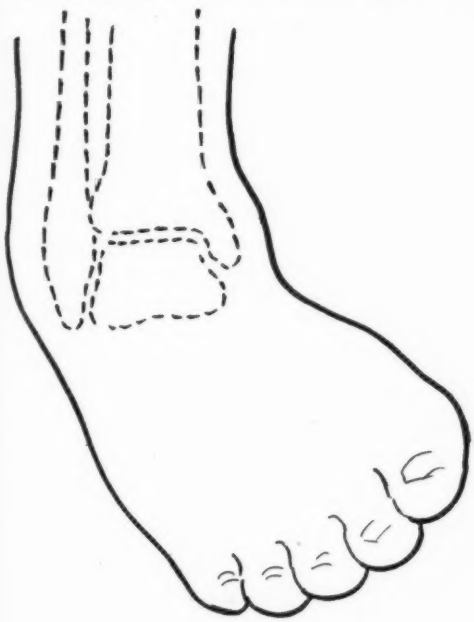

Fig. 10

When the foot is forcibly adducted and inverted the following sequence of events may take place:

1. Rupture of the external lateral ligament of the ankle joint. This results in instability and tilting of the astragalus in the mortice (fig. 11-a).

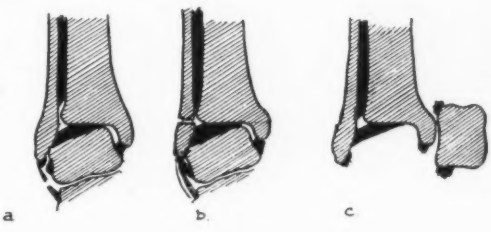

Fig. 11

2. Avulsion, transverse fracture of the malleolus at the level of the ankle joint occurs when the external lateral ligament holds (fig. 11-b).

3. Rupture of the deltoid ligament and complete dislocation of the astragalus, medially, usually accompanied by compounding of the dislocation. The internal malleolus may be fractured instead of rupture of the deltoid ligament. In this case the internal malleolus is fractured vertically, the fracture extending into the shaft of the tibia (fig. 11-c).

4. A typical adduction fracture of the ankle consists of a transverse fracture of the external malleolus at the level of the ankle joint and an oblique fracture of the internal malleolus extending upward into the shaft of the tibia. There is never rupture of the tibio-fibular ligament with diastasis in adduction injuries. The posterior tibial margin may be fractured (fig. 12).

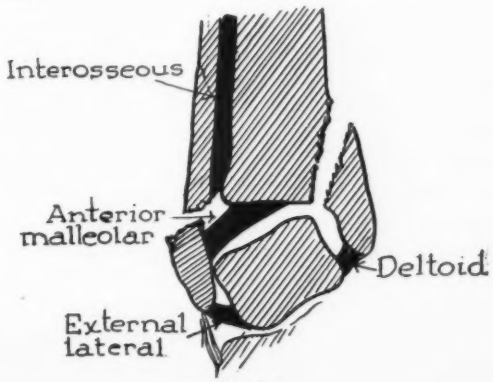

Fig. 12

It can readily be seen that in any of these types of ankle injuries the severity of the injury depends upon the time at which the injuring force is discontinued.

DIAGNOSIS OF INJURIES ABOUT THE ANKLE JOINT

Adequate clinical examination of the injured ankle includes careful detailed search for the various points of localized swelling and tenderness over the ligaments and over the bony points at which fractures frequently occur (fig. 13). A thorough understanding of the anatomy and of the mechanism of ankle injuries is essential for a proper clinical examination of these cases.

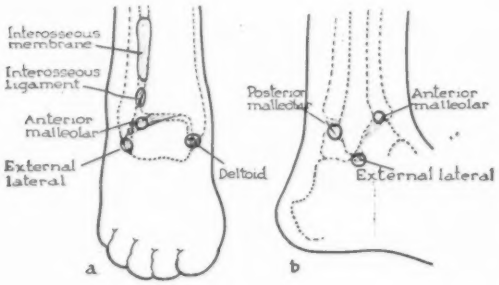

Fig. 13

X-ray examination should be carried out routinely in all ankle injuries in which there are pain, swelling and disability. An anteroposterior view of the ankle joint with the malleoli equidistant from the x-ray film is the one of choice. The lateral view should be taken with the external malleolus near the film if a fracture of the external malleolus is suspected, and with the internal malleolus near the film if a fracture of this structure is suspected. It may be determined from the anteroposterior and lateral views if oblique views are indicated, and if so, they should be taken. Fluoroscopic examination of the ankle should be condemned. If tibio-fibular diastasis is suspected because of pain and tenderness over ligamentous structures, especially the deltoid and interosseus ligament, an anteroposterior view should be taken with the fibula sprung away from the tibia. Abnormal widening of any joint space may be indicative of extensive ligamentous rupture.

It is only by careful evaluation of the clinical findings correlated with proper x-ray views that intelligent diagnosis of ligamentous and bone injuries can be made.

TREATMENT

The treatment of injuries of the ankle can be carried out properly and intelligently only after an adequate clinical and x-ray diagnosis has been made from a thorough study of the individual case. The treatment, therefore, will vary with the extent and variety of the individual lesions.

RUPTURE OF THE ANTERIOR MALLEOLAR LIGAMENT

Rupture of the anterior malleolar ligament commonly occurs as an isolated injury. Tenderness and pain are present over this ligament only. The individual is not disabled, but has considerable pain on walking. Support, in the form of repeated ankle strappings or the unna boot, for from four to six weeks, usually results in disappearance of the symptoms (fig. 14). The use of novocaine locally has been disappointing in the experience of the writer.

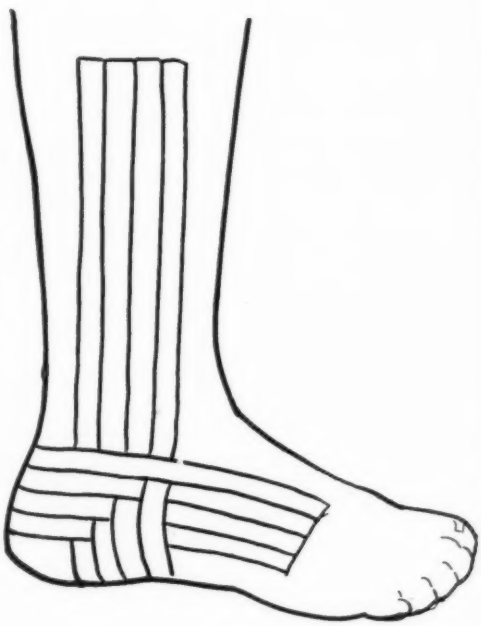

Fig. 14

RUPTURE OF THE ANTERIOR AND POSTERIOR MALLEOLAR LIGAMENTS

When both of these ligaments are injured the same treatment may be carried out as in the case of the anterior ligament alone. Disability may be somewhat longer.

RUPTURE OF THE ANTERIOR MALLEOLAR LIGAMENT, POSTERIOR MALLEOLAR LIGAMENT AND INTEROSSEUS LIGAMENT AND INTEROSSEUS MEMBRANE

When these structures are injured alone, disability is still not very great and although a strapping or the unna boot may be used, recovery would undoubtedly take place sooner with the use of a walking plaster for four to six weeks.

RUPTURE OF THE ANTERIOR AND POSTERIOR MALLEOLAR LIGAMENTS, INTEROSSEUS LIGAMENT AND INTEROSSEUS MEMBRANE TOGETHER WITH RUPTURE OF THE DELTOID LIGAMENT

It should be remembered that the astragalus does not displace laterally and tibio-tibular diastasis does not take place clinically or anatomically until or unless the deltoid ligament is ruptured or the internal malleolus avulsed. If the astragalus is not displaced laterally at the time the injury occurs, it may become displaced after weight bearing. The tibio-fibular diastasis must be reduced, the astragalus displaced medialward against the internal malleolus and thoroughly maintained in this position until healing of all the ligaments has taken place. After reduction of the diastasis, immobilization in plaster for at least three months is always indicated. If difficulty is experienced in maintaining reduction of the diastasis, the fibula should be fixed to the tibia by means of a screw inserted through a small incision over the distal third of the fibula. After this a skin-tight plaster with a walking iron may be used for a three months period. It is the opinion of the writer that these patients should not be allowed to bear weight even in a skin-tight plaster unless the fibula is fixed to the tibia by means of a screw or other means.

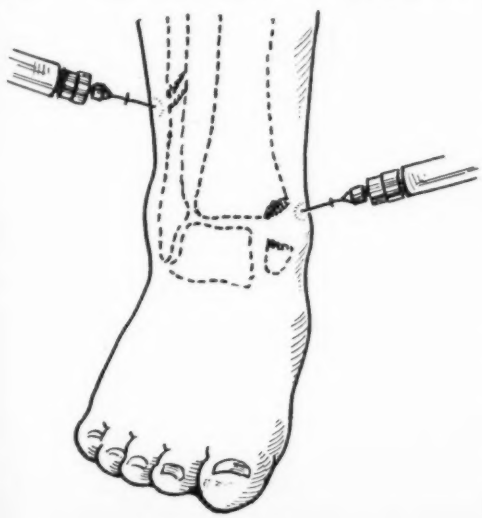

Fig. 15

The deltoid ligament may become interposed between the astragalus and the malleolus, in which case open reduction and suture of the ligament should be carried out.

AVULSION FRACTURES OF THE LATERAL MARGINS OF THE TIBIA ASSOCIATED WITH RUPTURE OF THE DELTOID OR FRACTURE OF THE INTERNAL MALLEOLUS AND TIBIO-FIBULAR DIASTASIS

This fracture should always be looked for, because if present the fragment may become rotated between the tibia and fibula and prevent reduction of the fracture and closure of the tibio-fibular diastasis. If it interferes with closed reduction it must be opened and replaced or removed.

RUPTURE OF THE DELTOID LIGAMENT ALONE

This injury may occur as the first stage of an abduction fracture and may exist as an isolated injury. If the ligament is not interposed between the astragalus and internal malleolus, immobilization in a skin-tight plaster with a walking iron should be carried out for a period of eight to twelve weeks.

EXTERNAL ROTATION AND ABDUCTION FRACTURES

Although the mechanism of these two types of fractures is somewhat different the injury is frequently the same. They are collectively referred to as Pott's fracture. The use of general anesthesia is preferable to that of local. The leg is allowed to hang over the end of the table and to be flexed at a right angle at the knee. Traction is made on the heel and forefoot, and with one hand on the inner aspect of the leg, the leg is pushed outward, while with the other hand over the external aspect of the ankle,

the foot and ankle are replaced inward. If a posterior marginal fracture of the tibia is present, after the malleolar fracture is reduced, the foot is pushed into dorsi-flexion two or three times, but not kept in dorsi-flexion. Maintaining the foot in a position of dorsi-flexion in these cases tends to widen the malleoli and does not help to keep the posterior fragment of the tibia down into position.

A plaster cast is applied over padding from the tibial tubercle to the tips of the toes, with the foot maintained in the reduced position by the operator while the plaster is being applied. The plaster is well moulded, pushing the ankle and foot toward the medial side while the plaster sets. The foot is kept in a neutral position, in 5 to 10 degrees plantar flexion, and is never adducted or inverted. It is kept elevated as much as possible for the next three weeks, at the end of which time the plaster may be changed and a skin-tight plaster applied with a walking iron. If these patients are allowed to walk during convalescence frequent re-x-ray examination should be carried out to discover displacement. Immobilization should be kept up for at least three months. After this weight bearing with crutches and with the use of the unna boot or adhesive strapping is continued until all swelling has subsided and pain has disappeared.

It will be frequently found on checking post-reduction x-rays that reduction has been anatomically accomplished. X-rays taken before the plaster has been applied and after reduction has been attempted may aid in some of these cases. In many cases, however, it will be found that open reduction and internal fixation of the internal malleolus will improve anatomical position and maintain reduction so that re-displacement cannot possibly occur. Fixation of the fibular fragment to the tibia with a screw in these cases also stabilizes the fracture.

If the posterior marginal fragment is small, it seems to make no difference whether anatomic reduction is accomplished or not. If the fragment involves as much as a fourth or third of the articular surface of the tibia, however, open reduction must be resorted to for anatomical reposition if this cannot be accomplished by manipulation. This can be accomplished by a posterior incision with retraction of the tendo-Achilles, or by the lateral approach, in which case the fibula is turned downward at the fracture site and the posterior marginal fragment reached from the lateral aspect.

ADDUCTION FRACTURES

The treatment of these fractures is essentially the same as that of abduction and external rotation fractures. Here, however, the displacement is different and tibio-fibular diastasis is not a problem. These fractures are reduced in the same manner as the other fractures with the leg hanging over the end of the table. Gentle traction is made with the hand over the forefoot and the heel, and the malleoli are displaced laterally and forcibly, instead of medially as in the case of the other types of fractures. If anatomic reposition can be obtained, a short leg plaster cast is applied and nothing further is necessary in the way of reduction. In some of these cases, however, it will be necessary to open and fix the internal malleolus so that anatomic reposition of the fragments can be had. The after care is essentially the same as that for the other types of fractures.

RESULTS IN FIFTY-SIX CASES

In the past three years, since January 1939, a total of 56 ankle fractures has been observed. Twenty-nine of these were external rotation fractures, 21 were abduction fractures and six were adduction fractures.

Of the 56 cases, 29 were treated closed and 27 were treated by open reduction and metal fixation of one type or another.

The results are known in 41 of the 56 cases. No attempt was made here, and it is not the purpose of this presentation to analyze these cases in detail. It should be mentioned, however, that the cases in which open reduction and internal fixation were used had previously been subjected to attempts at closed reduction. Open reduction was done on the majority of the 27 cases

because the position of the fragments in some way or other was not considered satisfactory. For purposes of this presentation, the results on the 41 cases on which the end results are known, have been divided into two groups, good and poor. There were 31 good and 10 poor results. Of the good results, 10 had closed reduction and 21 had open reduction and internal fixation. Of the poor results, seven had closed reduction and three had open reduction.

The poor results treated by closed reduction could be accounted for by improper anatomic reposition of the fragments at the time of the closed reduction in most cases. In some others the reduction was satisfactory at the time, but later some fragment re-displaced and gave a poor result. In a few cases, non-union of the lateral malleolus occurred and these were routinely classed as poor results. Practically every one of these seven poor results from closed reduction could have been converted into a good result by having had an open reduction, or at least better re-apposition of the fragments at the time of reduction.

The three poor results following open reduction were due to failure to open and fix the internal malleolus in two cases and to infection in one case.

On studying these end results it is apparent that absolute anatomical reposition of the fragments is necessary and that they be maintained reduced actively throughout the course of treatment until bony union is obtained.

SUMMARY

Fractures and other injuries of the ankle joint have been studied and presented from the standpoint of anatomy and function of the ankle. It has been shown that ligamentous injury is as important and in some cases more important than the fracture itself. The stability of the ankle joint is dependent not only on the bony structure but on ligaments. Disturbance in form or alignment of either of these structures may give equally poor function. The chief aim in the treatment of any ankle injury is to restore painless function. This can only be done by restoring the anatomical structure and maintaining restoration until healing has taken place.

The mechanism of ankle injuries has been described in detail. It is only by a thorough understanding of the anatomy and the mechanism of ankle fractures that a proper clinical consideration can be given. Correlation of the clinical and x-ray findings is necessary because of the importance of the ligamentous injuries which are not revealed in the x-ray.

The treatment of ankle injuries has been outlined for injuries of the ligaments as well as for fractures of the bone.

Fifty-six cases have been observed, treated and studied, and the results from the closed and open procedures summarized. A critical analysis of the results indicate that improvement can still be made by the lessons learned from the study of these cases.

Note: The writer is indebted to Dr. Guy A. Caldwell for making this study and presentation possible.

DISCUSSION

Dr. Isidore Cohn (New Orleans): Just a few words to remind you that time has resulted in many of us forgetting the history of a lot of things. A few years ago one of the distinguished surgeons in the middle west undertook to bring out from the dusty tomes something about fractures of the ankle. Some of you may remember the late Dr. Ashley Ashhurst of Philadelphia, probably the most meticulous man about the history of, or the origin of things. After he had read a paper by this distinguished surgeon he wrote a paper about fractures of the ankle. The opening sentence reminded the profession of statements made by Sir Percival Pott (1769) with reference to fractures of the ankle. The fundamental principles which Pott formulated at that time hold good today. If the normal mortice is disturbed by any fracture, fracture of the tibia or fibula, you will have a non-weight bearing ankle. Following that particular conception, long before the conception of "diastasis," it was appreciated that a loss of that normal mortice was the essential thing as far as weight-bearing was concerned. In order to have a weight-bearing ankle you must have the external and internal malleoli in their normal positions. For years many people have stated that the fibula is not a weight-bearing bone. No one will state it is definitely a primary weight-bearing bone. The fibula is indirectly a weight-bearing factor because disturbance of its axis allows some rotation of the astragalus.

Furthermore in regard to sprain I have talked

about sprains so much that folks are tired hearing it—I took my cue from Ross and Stewart some thirty years ago following their experimental work on animals. Their conclusion was that ligaments attached to small bony prominences have more tensile strength than the bony prominences to which they are attached, and therefore the ligaments will not tear before the bone gives way. Probably some of you were raised in the country, as I was, and probably you remember having swung on the old barn door, the hinges of which were made of leather held fast by nails. You will recall that in case of accident the nail with a small piece of wood would loosen rather than the leather tear. The diagnosis sprain is hypothetical. I think that we have fractures and if we would get pictures in sufficient number of planes we would see fractures that probably otherwise would be overlooked. Many of these can be treated very definitely by using a plaster cast and we do not have to operate. Very often we have rather interesting fractures about the ankle especially those where there is a fracture of the internal aspect of articular surface of the tibia accompanied by fracture of the fibula.

I would like to call Dr. Alldredge's attention to the fact that Gibney had used adhesive plaster strapping before Whitman.

Personally I would like to leave with you one thought—quit talking about so many sprains and look for fractures and treat the fracture primarily. Let us stop recording as something new, things preserved in surgical tomes over one hundred years ago.

Major Waring (New Orleans): Dr. Cohn asked me if I would discuss the paper of Dr. Alldredge on fractures of the ankle. I think Dr. Alldredge gave a very good presentation on this. It is necessary, I think, that one know the mechanism of the fracture and take into consideration all the facts. Dr. Cohn brought out very ably the fact that frequently when we think there is a sprain, it is a fracture. We see this happen frequently. Also I feel that there is a great tendency among the medical profession to say—this man does not have a fracture, all he has is a sprain—without adequate study. In other words, the patient is then not adequately treated for the condition present. We should keep the possibility of a fracture in mind whenever a patient comes in with a sprained ankle and not be satisfied until we have ruled it out.

Another thing was the remark about the taking of x-rays. I think we should take all views possible in order to establish a diagnosis. It is important to get true A. P. and lateral views.

Another point—I have always encountered difficulty in fractures of the internal malleolus, and usually find it necessary to fix the malleolus by means of internal fixation.

Dr. Guy A. Caldwell (New Orleans): I rise only to endorse Dr. Alldredge's paper. The necessity for accurate x-ray studies has been adequately covered by the others who have discussed the paper. However, I would like to add that in an acutely injured ankle, all the positions which are desired may not be obtained unless the ligaments are injected with novocain. The foot can then be turned into various positions necessary for adequate x-ray study without hurting the patient.

The only other point I would like to stress is that in the presence of definite diastasis, which has been shown to occur more frequently than we thought, a longer period of immobilization is necessary. If adequate studies are made and the treatment outlined by Dr. Alldredge is consistently carried out, as he explained, the necessity for open reduction would be diminished considerably. If this treatment is not followed, open reduction should be performed in order to get the ankle in accurate position because certainly the wobbly, unstable ankle joint is not only undesirable but also disabling.

Dr. J. T. O'Ferrall (New Orleans): Dr. Alldredge's paper, I think, is very important but it seems to me there are one or two practical points that would be of value to the men in the rural districts, who are not equipped to operate and who would probably appreciate a review of the positions of the foot about which there seems to be considerable confusion. I have always felt that the terminology applied to the foot and ankle is frequently mis-stated and, as I said, it is very confusing. For instance in Dr. Alldredge's paper he spoke of eversion and inversion of the foot. Inversion and eversion can not be applied to the foot but to the leg. Confine this to pronation and supernation; pronation with so-called eversion and supernation with so-called inversion.

I believe it is wise for men to try and confine their remarks to the accurate description, if possible, of the exact position of the foot. I feel also that when dealing with sprains that the paramount issue is to relieve the ligament injured of undue tension or further strain and if we apply the old-time Gibney splint, which I never use, we would be inclined to put on the splint in the neutral position. I am much more in favor of using some type of spiral strapping which will hold the foot in supernation or pronation, depending upon position desired. If you want to pronate, put the short end of strapping on inner side and spiral on outer side and it will hold the foot in pronation. If you desire supernation, the short end should be put on the outer and spiral around the inner side. That relieves either internal or external ligaments of strain or further tension.

I believe that in the vast majority of cases of Potts' fractures reduction should be done under anesthetic and then by fixing the foot, in the majority of instances in supernation and plaster, you can reduce the fracture satisfactorily. Of course there are severe cases in which displacement of

fragments is present and you do have to use a screw, which Dr. Alldredge mentioned.

Dr. Rufus H. Alldredge (In closing): In reference to the question as to why ligament rupture takes place in the ankle as referred to by Dr. Cohn, is not a matter to be decided apparently here at this time. I would like to refer you, however, to a great many men who have written on ankle injuries: Drs. Darrow and Murry of Columbia University; Dr. Key and Dr. Conwell: Dr. I. W. Jones of Liverpool. What they say about these things may not be right but at least they make an attempt to clarify some things in these ankle injuries.

As to the use of Whitman strapping, it is somewhat different from Gibney strapping. Gibney is older than Whitman; the Whitman is somewhat modified and should be used according to indications for use. It is applied for different things and it depends on what the strapping is used for as to how applied.

I appreciate the discussion. I especially appreciate Dr. Cohn's discussion in reviewing the history of ankle fractures, which is important and I did not have time to cover.

—o—

MEDICOLEGAL RELATIONS OF NERVOUS AND MENTAL DISORDERS*

CLARENCE P. MAY, M. D.
NEW ORLEANS

Physicians, while considering the welfare of the individual as a whole, are rarely ever versed in law. Lawyers, on the other hand, seldom know much about medicine, being concerned with the acts of individuals. Therefore psychiatry and the law are often in conflict.

Psychiatry treats of mental illness; its subject matter is abnormal behavior. In psychiatry there is no substitute for experience, and to the trained observer nothing determines more conclusively whether or not there is mental disorder than the things one does and says. Laws relating to mental illness were framed to protect society and to safeguard the rights of the sick person.

The terms insanity and crime do not indicate the sort of person involved. Insanity is a legal term which means mental incapacity either from the standpoint of civil or criminal law. A person may be wholly incapacitated and of unsound mind from a medical standpoint and yet thoroughly sound and capable from a legal viewpoint, for no one is insane until adjudicated so by a court of competent jurisdiction after a proper and lawful trial. Insanity is always the result of mental impairment, but not all mental illness constitutes insanity in its legal sense. Medically it is impossible to draw a hard and sharp line between sanity and insanity. There is no sign or symptom that alone is absolutely indicative of insanity, and contrary to much popular belief, insane people may behave in many respects like sane people. Physicians in court must take the law as it is, but their answers to technical questions should be in agreement with medical experience.

The symptoms of mental disorder consist of all degrees of abnormal behavior, from that type which is merely peculiar or eccentric to that which is observed in definite major mental disease. Character and personality changes are often early evidence of the existence of mental disorder.

The general symptomatology of mental illness includes: (1) disorders of perception—illusions and hallucinations; (2) disorders of consciousness; (3) disorders of memory; (4) disorders of the emotions—the feelings; (5) delusions; (6) disorders of the impulses; (7) compulsive ideas and compulsive actions.[1] Manifestations from each of these groups appear as symptoms of mental illnesses which may have forensic implications and relations.

The diagnosis in mental disorders can seldom be accurately made unless the examiner is experienced and has had an opportunity to investigate the subject's family and past personal history and adequately to observe and examine him under varying conditions.

The degree of mental capacity that is required differs with different relations, but if a person is mentally sound he will be held responsible either civilly or criminally. The real criterion of responsibility is the existence or not of mental disorder which interferes with law-abiding conduct. The

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 29, 1942.

psychiatrist in court is a witness, not a judge or jury. McCarty[4] thinks psychiatrists should be required to testify as to whether or not a person is mentally capable of knowing that his act is forbidden and punishable and that the judge and jury should decide the questions of responsibility and whether a person knows right from wrong.

The legal side of mental illness has a four-fold aspect: its relations to crimes, contracts, wills, and claims for injuries and disability.

The jury, in a criminal court, tries to ascertain whether the accused had the evil intention or mind to commit the crime with which he has been charged, and, unless this intention has been proved beyond a reasonable doubt he goes free, though he may have committed the act for which he is being tried.[8]

In construing a contract, a court first endeavors to ascertain when and upon what subjects the minds of the contracting parties met. A person may have the mental capacity to enter into a simple agreement and not into a more complicated contract. The inquiry is always as to the particular thing.[8]

The object of every judge in construing a will is to ascertain the testator's real intentions—his mind upon the subject. To make a valid will the testator must have sufficient mental capacity to comprehend the nature of the act he is to perform. He must understand the extent of the property which he is disposing of, the relations which he sustains to those who have claims upon him, and be capable of making a rational selection among them. Less mind is ordinarily required to make a will than a contract. It is sufficient if he has such a mind and memory as to enable him to understand the elements of which a will is composed—the dispositions of his property in its simplest form. When it has been proved to a court that a testator was influenced by delusions, illusions and hallucinations at the time of making a will, then that will is invalid.

The neuropsychiatric medico-legal aspects of many claims for injuries and disability are numerous and important. Detection of malingering is often difficult. Braude's[2] chapter on simulation or malingering is excellent and in it are described many useful tests and special methods of examination. Gill[3] cleverly discusses malingering in connection with the Selective Service Act. The question of bias on the part of physicians, especially in medico-legal matters is serious and one which provokes much criticism of the medical profession. Bias is exhaustively and ably considered by McCarty.[4]

The proof of insanity is an important part of court procedure. While medical experts are usually called upon to testify, the law does not recognize expert testimony as being of any greater value than that of ordinary persons. But if the testimony of expert physicians is properly given, it usually has great weight with the jury and the court.

Many mentally disordered persons are potentially dangerous. In some mental illnesses the danger is chiefly to the patient's self; in others, to other persons. The more mental deterioration, the less danger, as there is less initiative and emotional drive. It is in the mass of lesser crimes that the psychiatric examination is especially necessary, but it is in these cases that lawyers prefer a jail sentence for their clients to the chance of a long period of hospitalization. Oliver,[5] of Baltimore, reports after a study of a large number of cases, that in not a single instance of an illegal act committed under emotional stress was the delinquent normal, bodily and mentally.

It seems curious that in insanity hearings, if a prospective juror possesses any special knowledge about mentally ill persons, he is out, but he would be allowed to testify as an expert.[9] Negative evidence is not evidence at all in ordinary legal cases. But in insanity trials, it is not only admissible but determinative. Example: In an ordinary case two persons testify that they saw a pistol in Doe's hand and a hundred persons say they did not. The positive evidence of two positive witnesses outweighs

one hundred negatives. But if the pistol carrier's sanity is being questioned, two disinterested psychiatrists testify that he is mentally disordered and a group of interested and untrained lay witnesses say they do not think him insane, then the jury almost invariably brings in a verdict against findings of the trained observers. To the mind of the average layman it is not possible for a large group of persons to talk to a mentally disordered person and fail to detect his illness.[9]

Mental hygienists[9] believe that: (1) punishment is not always a crime deterrent; (2) legal measures frequently aggravate rather than correct; (3) physical or mental factors may be the sole contributors in cases of delinquency; (4) any plan for the reduction of crime must contain a provision for the scientific study of individual offenders.

Physicians who appear in court as expert witnesses are apt to have a rough time of it if they are not thoroughly prepared and if they are unaquainted with their rights and privileges and unfamiliar with court procedure. Lawyers should depend on law rather than psychologic tactics and display to win their cases. When dealing with cases involving medical problems, lawyers need expert advice. There is no entirely satisfactory book which simplifies the theory and practice of medicine for lawyers or one which summarizes law for doctors. Even if there were such books, neither lawyers nor doctors would ordinarily possess the background in training and experience effectively to use such books without technical help.

REFERENCES

1. Barrett, A. M., Peterson, Haines, and Webster: Legal Medicine and Toxicology. Philadelphia, W. B. Saunders Co., 1923.

2. Braude, M.: The Principles and Practice of Clinical Psychiatry. Philadelphia, P. Blakiston's Son and Co., Inc., 1937.

3. Gill, M. M.: Malingering. Bull. Menninger Clinic, 5:157, 1941.

4. McCarty, D. G.: Psychology for the Lawyer. New York, Prentice Hall, 1929.

5. Oliver, J. R.: Foursquare. New York, Macmillan Co., 1929.

6. Scheffel, C. L.: Medical Jurisprudence. Philadelphia, P. Blakiston's Son and Co., Inc., 1931.

7. Singer, H. D., and Krohn, W. O.: Insanity and Law. Philadelphia, P. Blakiston's Son and Co., 1921.

8. Springstun, H.: Doctors and Juries. Philadelphia, P. Blakiston's Son and Co., 1935.

9. Williams, E. H.: The Insanity Plea. Baltimore, The Williams and Wilkins Co., 1931.

DISCUSSION

Dr. Edmund Connely (New Orleans): As Dr. May has indicated, the psychiatrist doing medico-legal work is concerned with a good many difficulties and finds it necessary to make a good many adjustments. Someone said that the last piece of constructive legislation in psychiatry was in 1845. I would not be responsible for that date; I do not know. Sometimes when you get in court you wonder if it was as late as that. There is no doubt the point of view and the type of case has to be treated in a different way from the psychiatric standpoint, not because psychiatry is different, but because the legal attitude in different cases varies—the criminal case in one manner, the civil case in another. The type of civil case varies. So while psychiatry is the same, or we think it is the same, the legal point of view is different, and the medico-legal expert must conform to the legal angle. We have to realize that there are many cases we ourselves would consider abnormal, which from a legal standpoint are not. The law has to draw the line somewhere and the law cannot split hairs in making decisions. They have to be positive decisions. So the medico-legal expert, especially the psychiatrist has to be careful to get as close to the line as possible without splitting hairs, and at times it is hard to do. It is hard for the legal man, judges, jury, to understand the psychiatric point of view. I do not suppose there is any field as little understood by laymen as psychiatry, and it is a little hard for the psychiatrist to adjust himself to the legal point of view. But there is no doubt we must do it if we are to be of value to the courts as experts. We all have to remember that our function is not strictly speaking as a witness. The doctor must state his mind. He must be witness and not jury or judge. I believe the medico-legal expert has to be all. He has to weigh the facts as he gets them and weigh them carefully and completely. I believe he has to understand and adjust them to the medico-legal angle, and as a witness has to present them to the court and jury in such a manner that they themselves can weigh and judge them from the medico-legal angle. He has to present them simply and in language the layman can understand, and he has to be able to substantiate his opinion by the facts and have the judge and jury see those facts from the proper psychiatric angle, and to be able to understand them from that angle, otherwise he will not get very far as an expert.

I think the average judge and the average lawyer expect the doctor to be biased, which is unfortunate, but is a fact that a great many do. As a matter of fact, I will always say that the expert witness should never be biased. He is there to assist the court, not as a partial witness, but a good many expect you when you are their witness to lean

towards their side. At the same time, it is not fair that the medico-legal expert should not be biased. He ought to present the facts as they are and interpret them to the best of his ability from the psychiatric standpoint. It is a little hard sometimes to do that, but some do. The ideal medico-legal expert will do that, and if he does not he soon loses the confidence of courts and judges.

I think we should never express an opinion that we cannot justify so the layman can understand it, and I believe we have to learn to adjust ourselves from the medico-legal standpoint to the various criminal and civil viewpoints.

Dr. T. A. Watters (New Orleans): I think medicine now is concerned with more than the individual. Organized medicine, The United States Public Health Service, the Mental Hygiene Movement, have taken medicine beyond the individual. On the other hand, I believe law is giving more consideration to the individual. The lawyer is fixed in a system of rules and doctrines under which he has to operate, nevertheless many lawyers are very competent students of human nature and recognize the limitations imposed upon them, when they apply the principles of law.

I believe the law student should have some psychiatry in his training, and I cannot help but entertain the hope that some day a unit will be installed at Charity Hospital that will make it possible for law students to have access to practical observation in psychiatry under medical supervision.

I looked up the word "insanity" and it is not a legal word. Rather it is a lay word that found its way into law. It comes from "sanus" and originally meant a sound body.

It is vitally important that we think in terms of "more of less," rather than in terms of "either, or." A patient is not sane or insane; there are too many factors to be considered and we must insist on this point of view. Such a point of view must be inculcated in the training of lawyers.

I cannot help but make some comments on the fact that we must consider these problems from the point of view of personality and personality changes, and get away from the obsession of nosology. There may be early changes which indicate paresis or a schizophrenic reaction, but if the case does not follow the classical descriptions in out-moded textbooks, it is very difficult to make this point with lawyers. One of the difficulties of psychiatry today is that we are still depending on textbooks written about formal "disease entities"; as a result we are still inclined to think of advanced disorders of personality function, of "disease." This is a product of medical teaching which has made "disease entity" a fetish.

Compulsions—I think at times physicians are inclined to take the meaning of compulsions as the legal profession sees it, which is the outgrowth of too much emphasis on the concept of "irresistible impulse." In psychiatry, compulsions are associated with a disorder, in which the patient carries out the compulsion to relieve himself of certain ideas or tensions. The compulsion serves as a preventive or offsetting phenomenon. The compulsion is a symptom of a rather specific reaction that is fundamentally psychiatric, not legal. Dr. May's idea about encouraging a long-term study of the person under consideration is extremely important. Let me add just as much study of the culture in which he lives be made. There is a vast difference between a person in one culture and a person in another in so far as an illegal act, or a psychiatric disorder is concerned.

Dr. May covered the question of responsibility very nicely. I have looked up the original phraseology in the decision of the Chancellor in England, trying the McNaughton case which is the basis for the legal concept of responsibility in the United States today. These are the exact words given out in the House of Lords, on which the loss of responsibility and the law are superimposed: "To establish a defense on the ground of insanity, it must be clearly proved that, at the time of the committing of the act, the party accused was laboring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or, if he did, that he did not know he was doing what was wrong."

Dr. May brought up the question of the different fields in which psychiatry is associated with the law. I think he said: Crimes, contracts, wills, and compensation cases. We certainly have to do with contracts in regard to marriage; a great deal of work comes out of them directly and indirectly. Of course, we have a great deal to do with wills and a matter of wills is based on the "freedom of will" of the man making the will: A philosophic concept subject to considerable debate. Then the matter of claims and compensation cases brings up the question of malingering which is undefined at present. Many people believe there is no such thing, that the malingerer is inherently mean and a criminal. On the other hand there is a growing conviction on the part of many of us that malingering is a symptom-complex indicative of disordered personality. Some of us believe that practically all malingerers are psychopaths, psychoneurotics, or combinations thereof. So if we have psychopathic behavior, the type of behavior malingering shows, I am inclined to believe that we are dealing with a sick person and not a criminal per se.

Dr. May's remarks on expert testimony are important. The lawyer plays upon the impressibility and suggestibility of his jury. There is no doubt about it; he does everything to impress the court. He exercises a great deal of psychology at times, at other times plain acting. Sometimes he may be unscrupulous in his methods, yet these court room tactics of browbeating and mental magic are taught

and sanctioned for the sake of extracting "the truth" from the witness.

The mentally ill are dangerous, but not alone to others. We have to consider that the immediate danger is to himself, his reputation, his property, and to his family.

I think it was Dr. Oliver's comment that of "all patients studied, he found none who were not abnormal." Dr. Oliver is an extremely keen observer, has had a rich experience in court work, is an excellent psychiatrist, and is known for honest thinking.

Dr. May's comments on negative evidence are extremely important. One thing with which we psychiatrists have to face ourselves constantly is this: The average layman believes he has an inherent ability in sizing up and understanding other people. If you took 100 people off Canal Street very likely you would find a very high percentage of them thinking themselves clever and competent at reading character and personality. If someone has a disorder of the liver, they would not have that point of view, but everybody is an amateur psychiatrist. We must constantly recognize this fact.

The matter of punishment is important. I have visited Leavenworth and Alcatraz Prisons and know the wardens of these prisons personally. One cannot but be impressed with the educational department of Leavenworth. The wardens believe without question that education is the solution of crime; education with a social point of view about crime analogous to the way we look on mental disorder. We must drop our social, medical and legal biases, and face the matter of crime with honest thinking.

It is important for the psychiatrist to remember that he is not the judge. He must abide by the principles of court procedure. The court room is the domain of the lawyer; the operating room, the domain of the surgeon; the psychiatric unit the domain of the psychiatrist.

Physicians in court again must be familiar with the rules of court procedure and also familiar with the tactics of cross-examination. Every medical student would do well to read Wellborn's The Art of Cross-Examination. Lawyers can teach us a great deal and we might well afford to learn more for our own sake. They certainly can teach us something about suggestion.

I think that some comment should be made about our Courts at the present time. Many have deteriorated into vaudeville circuits. This is to be deplored. The solution, as I can see it, is a matter of giving our law students more understanding of psychiatry and our medical students more understanding of medical jurisprudence. A job which is one largely of reaching out through education.

Dr. L. Roland Young (Covington, La.): I think that we should bear in mind that criminal law can protect society and that is its purpose. I believe there is such a think as a malingerer. I believe we even see it in the psychoneurotic field. If you have lived under the same roof with this class of patients for about twenty years like I have where only about 10 per cent are psychotic, naturally I am not referring to the organic neurologic cases found, such as paresis and encephalitis. Yet, I realize the constitutional theory refuting that there is such a thing as a malingerer. Just here, about a year ago I was appointed on a lunacy commission with an experienced, competent doctor of New Orleans, Dr. George Roeling, to examine a patient who was definitely suspected of malingering insanity. As his feigning continued the talk in the little town of Franklinton began that he might be insane, for he was not eating, he was mumbling and beginning to look badly. The officer of the jail definitely over-heard him say that he was not going to Angola and he would play crazy. These folks can fool themselves and go too far and go insane.

We saw this man on two different occasions together and on a third occasion I saw him alone and did a spinal puncture.

The only physical defect he had was a unilateral chronic otitis media which proved to be the main basis for the defense.

After our testimony at the hearing I immediately went home and within two or three hours the District Attorney dropped by to tell me that the man had confessed even before he got back into the jail.

In the Fall of 1939 I visited Dr. Lowell S. Selling's Psychopathic Clinic as well as his traffic clinic of the Recorder's Court of Detroit. I am sure one way that we can help to protect society is the way that Dr. Selling is doing and this is largely prevention against the crime.

All misdemeanors and the like are brought before the recorder's court as you know. All second offenders are turned over to Selling with few exceptions, and sometimes first offenders, and are carefully checked by his clinical staff for physical and nervous or mental disorders, thereby often these would be felons are nipped in the bud.

Dr. C. S. Holbrook (New Orleans): I shall speak briefly on one subject and that is—the doctor as a witness. We unfortunately find ourselves in court often, and I know the young man, freshly out of college, goes to court with a great deal of hesitation, and all medical men go with much reluctance, to say the least. There are two ways in which a doctor can be called to court. One is as an ordinary witness, to tell only the facts of an accident or an injury, and that is all he needs to say. He should hold his testimony only to facts and he need not express an opinion as to the cause, the result, the length of time that one is going to be ill, or what the complications may be. The lawyers undoubtedly try to capitalize on the medical witness and try to get a lot of information into the record, which should not be. The ordinary witness should speak only of the facts he observes, and the facts as he

sees them, very much as a nurse, or an ordinary lay person might do, and he need not express his opinion. If the lawyer insists by one question or another to get an opinion, you can avoid that trick by asking if he wishes you to give testimony as an expert. Then you can ask the court to fix a fee. If the lawyer is willing to do that, it works out all right.

One should go into the court well versed with the subject, but the medical man should not be afraid to go on the witness stand if he will stick to the facts of the case, whether giving ordinary testimony or expert testimony. If the lawyer makes it disagreeable for you, or tries to be sharp, the judge will always stand by you if you appeal to him. I think we should not hesitate to go to court because we know so much more about our subject than the lawyer can possibly know. If we keep our head and do not get disturbed, hurried or annoyed we should get along very well.

Dr. C. P. May (In closing): It is always gratifying to have a paper provoke a lot of discussion. The only fault I have to find with the discussion is that no one said I had an excellent paper; this is the usual custom. But those who have discussed the paper have all been very kind and I thank them very much indeed. I wonder if it is really true, as Dr. Connely says, that judges and lawyers expect medical expert witnesses to be biased—I am a bit amazed to be told that.

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THE USE OF THE VARIOUS INSULINS IN THE TREATMENT OF DIABETES MELLITUS*

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The purpose of this presentation is really not to discuss the treatment of diabetes mellitus in detail, but rather more to point out some of the important considerations and comparisons of the various insulins as they may relate to or affect treatment. By various insulins is meant: regular insulin, protamine zinc insulin and crystalline zinc insulin, all three of which are now quite commonly used. Some of the newer types will be mentioned because recent reports seem quite encouraging, although they have been available mostly for experimental work.

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 29, 1942.

HISTORICAL OBSERVATIONS

It is often interesting to look back and see what the history of the treatment of a disease has been and this seems especially true for diabetes. We find that diabetic treatment has occurred in more or less definite periods or eras. For instance the period before the discovery of insulin is known as the pre-insulin era and is further divided into two periods. First from about 1900 to 1914 is known as the Nauyn era and although he probably did not contribute to the actual treatment of diabetes, he did show that the development of diabetes seemed to be associated with hereditary and obesity factors and therefore added to our knowledge for the prevention of diabetes. Then about 1914, Allen of this country following up the work of von Noorden, showed that the previously high fat diets were really harmful, in that they were prone to cause acidosis and coma. Allen therefore introduced and used the so-called high carbohydrate diet and showed that the good results that he obtained were due to the stimulation of endogenous insulin production. This work has been substantiated and accepted by many workers. From the discovery of insulin in 1921 until about 1937 is known as the Banting era or the golden diabetic period, for it has been during this span of years that our greatest advancement in treatment of diabetes has come. Hagedorn, of Denmark, in 1937 announced protamine insulin and Joslin speaks of the few years since as the Hagedorn era. The diabetic's diet has also changed by periods and we have had high fat diets, starvation diets and high carbohydrate diets. It would seem that at the present time, most internists prefer a relatively high carbohydrate diet although the tendency is to try to give the diabetic a diet similar to the normal individual. The diet question is not entirely settled, but protein may be given in the amount of 1 gram per kilo of body weight, carbohydrate about 150 to 200 grams and sufficient fat to bring up the caloric requirements.

CRITERIA FOR TREATMENT

Now the object of treatment of diabetes mellitus as we have been taught for a good

many years, has been to maintain the blood sugar within normal limits throughout the 24 hour period and prevent glycosuria. The normal range of the blood sugar may be taken as from 70 to 150 mg. It would seem that most of those interested in the treatment of diabetes have worked with these principles in mind and have been quite successful in a large percentage of their patients. When it is necessary to follow carefully the blood sugar level, this can be satisfactorily carried out by about four checks during the 24 hour period. These may be taken before each meal and bedtime. Of course if information regarding the height of hyperglycemia after meals is desired, postprandial blood sugar determinations will have to be done. A brief rise above the 150 mg. level at this time is without significance, even though a trace of glycosuria may occur. Satisfactory urine checks may be obtained by fractional urine specimens taken from breakfast until lunch, lunch to supper, supper to bedtime and from bedtime until morning. It is usually good practice to check the blood sugar from time to time and not rely entirely on urine examinations for control, because there are patients with high renal thresholds and then elderly arteriosclerotic patients are rather prone to hyperglycemia without glycosuria.

Usual methods which control mild diabetes, and fortunately a majority of diabetics come in this group, frequently fail when applied to the more severe forms of diabetes or the unstable diabetic. This unstable group is often difficult to handle even though they may be studied carefully and various means of control tried. Diabetics may be unstable because of various reasons. First, patients differ in their rate of reaction to insulin, some rapid and others delayed. While this group probably is not large, but when confronted with such people, they should be individualized and optimal distribution of carbohydrate worked out individually. At times patients will be found who tend to be inherently unstable, particularly children and adolescents. This instability is usually due to one of two reasons. First, insulin hypersensitiveness and this does not mean allergic to insulin but exaggerated swings of the blood sugar curve in response to carbohydrate and insulin. Somogyi, of St. Louis, was the first to point this out and when he stated that, "hyperglycemia begets hypoglycemia" he meant that the delicate mechanisms that tend to correct hyperglycemia overshoot their mark and vice versa. Much can be done to smooth out the sugar curve and control this condition by correct interval feedings.

The second reason for inherently unstable diabetics is irregular variations from day to day in carbohydrate tolerance and insulin requirements. This type is difficult to control and there are several things that should be suspected in such patients: Surreptitious variations in food intake, errors in serving of the diet or variations in technic of insulin injections. It is important to understand that insulin must be injected beneath the skin and not into the skin if it is to absorb well. Massage of the region for a few seconds after the injection is of value. Joslin has called our attention to exercise as a factor at times, in causing patients to become unstable. He points out that delayed hypoglycemic reactions are apt to occur the day following the unusual exercise. These delayed reactions are more likely to be associated with the use of protamine zinc insulin and may be prevented by reducing the insulin 5 or 10 units. Better still is to increase the carbohydrates some before or during the exercise.

There may be a genuine variability to insulin needs for which no cause is apparent. Then there is the possibility that unstable patients may become stable by careful management. At times stabilization may be brought about by changing from regular insulin to a retarded insulin. Another procedure that at times may be successful in stabilizing a patient is reducing the diet from a high carbohydrate to low or moderately low carbohydrate. Therefore, given an unstable diabetic patient, all the foregoing factors and methods should be considered or kept in mind in attempting to stabilize him.

TREATMENT OF SEVERE DIABETES

This discussion so far has been mostly about the criteria satisfactory for treatment with regular insulin, but since the introduction of protamine zinc insulin, these criteria are not so easy to meet except in patients with mild diabetes. In the more severe diabetics, if we give one daily dose of protamine zinc insulin, sufficient to take care of the dietary loads, there is apt to be severe hypoglycemia during the postabsorptive or fasting periods (period between evening meal and following morning, breakfast). Tolstoi and Weber,[1] of New York and Cornell University, noticed a few years ago that although a large number of their patients had high blood sugars and large amounts of sugar in their urine, they seemed to do well and be more like normal people. Therefore these men decided to take a group of 84 of their ambulatory patients and watch them for a year, giving them one daily dose of protamine zinc insulin. They did not pay any attention to the amount of sugar in the blood and urine so long as they met certain criteria: (1) Maintenance of body weight; (2) absence of urine ketone bodies; (3) freedom from symptoms of diabetes. Tolstoi concluded that utilization and not the excretion of carbohydrates is of prime importance. The fact that the patient is doing well is evidence that he is using carbohydrate and this is the thing that makes him feel well. It had been thought up to this time that hyperglycemia and glycosuria made a patient more susceptible to infection but Tolstoi did not find any more infections in their group than non-diabetic groups. Also they claimed not to have found any more atherosclerosis in their patients than in others. Glycosuria protects patients from reactions and therefore is beneficial. Especially is this of importance in elderly patients with arteriosclerosis and subject to cardiac disturbances.

Many publications seem to substantiate the work of Tolstoi and his associates in principle but differ in the amount of hyperglycemia and glycosuria permissible. Recently Joslin[2] and his associates have challenged Tolstoi, stating that 42 years of experience in their own clinic have convinced them that methods designed to control hyperglycemia and glycosuria result in reduced incidence of coma and other complications of diabetes and an increased length of life of the average diabetic patient. Allen[3] has also sided with Joslin in this argument, but it will no doubt require several years to determine if the Tolstoi method of treatment is correct. In the meantime until this controversy is settled, satisfactory control with protamine zinc insulin as already defined should probably be the goal in treating severe diabetes. It should also be kept in mind that there is evidence that hyperglycemia and glycosuria are not only compatible with good health but of benefit in preventing reactions. At the present time crystalline zinc insulin would seem to be the choice when it is necessary to use another insulin with protamine zinc insulin.

ACUTE DIABETES

Severe acute diabetes often requires a period of strict observation. By acute diabetes is meant diabetes that begins more or less acutely with the typical symptoms of diabetes as polyuria, excessive thirst, loss of weight and so on. The usual methods, as already stated, that control mild diabetes often fail when used for the more severe types. By mild diabetes is meant one that is controlled by total daily dosage of insulin up to 25 units. When it requires from 25 to 50 units of insulin daily, these patients may be classified as moderately severe and daily doses of 50 units or more of insulin are usually necessary for severe diabetes. Strict observation of these patients should include knowledge of home and business life, whether there is present any intercurrent infection or other complicating diseases, or nervous and mental stability. Protamine zinc insulin is admittedly technically more difficult to use than regular insulin and there does not seem to be any standard method for its use, still it would seem to be the choice, whether used alone or with other insulins. Martin[4] and her

associates of Los Angeles, have been able to bring about satisfactory control in certain severe diabetes, in which all other methods have failed. She uses protamine zinc insulin to take care of what she calls the basal insulin requirements, which is the amount of insulin necessary to prevent postabsorptive or fasting hyperglycemia and glycosuria. Before each meal she uses regular insulin to prevent hyperglycemia, and glycosuria after meals. Martin and her associates claim the objections to the numerous insulin injections are outweighed by the satisfactory control obtained.

THE VARIOUS INSULINS

The properties and results of regular insulin are well known. Probably its most favorable feature is the quick action which makes its use valuable in emergencies as acidosis and coma. Regular insulin is usually preferable where the food intake varies from day to day as in infections, nausea and vomiting. The frequent injections and the variable results obtained with regular insulin are its main objections. Sustained effect of protamine zinc insulin and one daily dose are desirable features, the effect lasting from 16 to 24 hours instead of only a few hours. General reactions and local skin reactions are undesirable effects of protamine zinc insulin. The prolonged reactions of protamine zinc insulin are no doubt detrimental to certain tissues and many may be prevented by not attempting to use too large a dose. Instead of one large dose, an unmodified insulin may be used along with the protamine zinc insulin and a large part of the carbohydrate shifted to the latter part of the day and early night. Skin reactions are often due to faulty technic as already discussed. The slight prolongation of action of crystalline zinc insulin and purity are its advantages. However some workers consider the action of crystalline zinc insulin the same as for regular insulin.

According to extensive studies of Bailey and Marble[5] of Boston, histone zinc insulin and globin (zinc) insulin are highly satisfactory products. The action of histone zinc insulin resembles that of protamine zinc insulin but the effect is not quite so prolonged, while there is definite initial effect within two hours after injection. Not as many reactions occurred with histone zinc insulin but when they do occur, they are usually in the late afternoon. Globin (zinc) insulin action is a little less prolonged than histone zinc insulin action but the initial action usually begins within two hours after injection. Neither are reactions common with this product and late afternoon is the usual time of their occurrence.

At times the reactions may be about the same but more often the reactions of protamine zinc insulin differ from those of regular insulin. After treatment regular insulin reactions usually clear up while protamine zinc insulin reactions are likely to return and persist for several hours and require continuous treatment. Regular insulin reactions occur more often during the day while protamine zinc reactions are more prone to occur during the latter part of the night or early morning hours. Protamine zinc insulin reactions are rather vague; headache, nausea, malaise and numb sensations about the mouth. The reactions may come on during sleep, the patient awakening with sore muscles, evidence that he has had a convulsion. Regular insulin reactions are characterized by temporary hunger, tremor, nervousness and sweating. They are usually considered to be more violent but of shorter duration. Crystalline zinc insulin reactions are quite similar to those of regular insulin, while histone zinc insulin and globin (zinc) insulin reactions are more like those of protamine zinc insulin.

SUMMARY AND CONCLUSIONS

Protamine zinc insulin in one daily dose satisfactorily controls mild diabetes and is quite effective in most severe diabetes, either alone or in combination with an unmodified insulin, preferably crystalline zinc insulin. Unstable diabetes may be very difficult to control. Martin and her

associates have described a method which seems effectively to control certain severe diabetes after the usual methods have failed. No doubt protamine zinc insulin would be more universally used if the modifications in technic were better understood. There is evidence that in patients treated with protamine zinc insulin, hyperglycemia and glycosuria are not incompatible with good health and may be beneficial in that they prevent reactions. Even though recent reports of some of the newer insulins are encouraging, they probably should not be made available for general use at the present time, because of the danger of complicating the treatment of diabetes. It would seem that about two insulins should be on the market for general use, to simplify treatment, a rapid acting insulin and a slower and prolonged acting insulin.

REFERENCES

1. Tolstoi, E., and Weber, F. C., Jr.: Protamine zinc insulin: A clinical study, Arch. Int. Med., 66:670, 1940.

2. Joslin, E. P., Root, H. F., White, P., and Marble, A.: Treatment of diabetes, J. A. M. A., 115:1038, 1940.

3. Allen, F. M.: Diabetes, J. A. M. A., 115:1474, 1940.

4. Martin, H., Drury, D. R., and Strouse, S.: Basal insulin requirement in diabetes mellitus, Arch. Int. Med., 66:78, 1940.

5. Bailey, C. C., and Marble, A.: Histone zinc insulin, globin (zinc) insulin and clear protamine zinc insulin, J. A. M. A., 118:683, 1942.

DISCUSSION

Dr. Edgar Hull (New Orleans): I am grateful for the opportunity of hearing Dr. Baskett's practical paper. What I would have said in discussion of it has been given by the essayist in his conclusions. I strongly believe that medical therapy in general, and the therapy of diabetes in particular, need to be simplified rather than increased in complexity. The average physician can certainly handle diabetes better if he can get along with two types of insulin than if he has to consider four or five types in the treatment of patients with diabetes. If it can be shown that there is no particular advantage in rigidly controlling glycosuria and hyperglycemia in patients with diabetes, and that patients remain in good health indefinitely if they are kept in a good state of nutrition and free from acidosis, many of the difficulties in the treatment of patients with severe diabetes will have disappeared.

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THE EDUCATION OF THE FUTURE PHYSICIAN

When the draft regulations were revised to bring into the Army all men past the age of 18, it became obvious that higher education in this country would be virtually nonexistent except in the instance of a few young men who are unable to pass the physical examination required before a man can enter the armed forces. There would probably be very few of such men who could not qualify, if not for full duty at least for limited duty. With the cessation of collegiate training it became obvious that the supply of doctors, which both the Army and Navy have agreed must be forthcoming from the medical schools in a continuous stream, would be stopped. Measures would have to be taken to ensure a regular and steadily flowing group of young men into the armed services who could be used for replacements for the medical men who are killed in action or who have broken down physically. The civilian population has been drained by the Army and Navy of nearly all of the physicians it can stand without serious disruption of essential needs. There must be, of necessity, replacement also in the civilian doctors whose losses by retirement or by death are only slightly smaller than the yearly increment to the medical profession of the graduates of medical schools of this country.

In order to make provisions for the continuation of the young men in the study of medicine, it became necessary to devise a method whereby students could enter the premedical classes and could continue their education through the medical school. Such provisions have been made by the War Manpower Commission. The only group of men to be trained professionally or technically who will go under this rule are the prospective dentists and physicians, together with a few future veterinarians.

The plan calls for the induction of the young men into the Army. A group representing approximately 150,000 of these men will be selected at induction centers and elsewhere to continue specialized training. The engineers, physicists, chemists, meteorologists and a few others, who will be selected from this large group, will receive only relatively brief and highly specialized training. The doctors and dentists are the only groups that will be allowed to obtain a professional degree.

The men who will be selected for premedical course will be carefully chosen on the basis of their previous scholastic record, and their intelligence as judged by several intelligence and aptitude tests. The men will be allowed to signify that they wish to study for either one of the professions. The boy

just entering the premedical course will be in the Army or Navy and will have to live under Army or Navy regulations. The course that is arranged by the Army specialized training program is a difficult one. Work will be continuous without holidays. Approximately sixty hours a week must be devoted to the training of these men. A certain number of hours, five, will be devoted to military instruction and six hours a week to physical training. There will be five semesters and greatest stress will be placed on mathematics, physics, chemistry and biology. A few contact hours per week in the last three semesters will be allowed for certain selected courses such as psychology, history, public administration, physical chemistry and modern foreign languages. It is felt that five semester periods is too short a time to train adequately the embryo doctor. Most educators feel that six semester periods should be the minimum.

On the completion of premedical training, if the grades have been satisfactory and the work well done, the student is then assigned to one or another medical school, the selection being based on accessibility or nearness of the medical school to the place where the premedical training was taken, with the additional factor that too long a period should not elapse between the completion of the premedical training and the entrance into the medical school. An effort will be made to allow some choice of medical school by the student but it will not always be possible to accede to the wish to enter a specific institution. On the whole, most students probably will have to go to the medical school selected for them by the Army or Navy.

When the student enters the medical school he will not have to follow the curriculum outlined by the specialized collegiate training program, but will follow the curricula that are given in the medical schools; there will be no interference with the curricula of the different medical schools. While in a medical school a student will be a private detailed to that school for training just as privates are detailed to various training courses of a technical nature that are now being conducted all over the country, from schools of baking to schools of radio technic. The medical students in the medical schools will finish their course in three years. There will be no vacations with the exception of possibly a few days between semesters. The students will be given the base pay of a private, their tuition will be paid, if the schools cannot provide living quarters and eating arrangements, they will be allowed $2.50 a day for subsistence. They will be in uniform. They will have to live under military regulations and there will be a commanding officer over each of the units. They will be supplied clothing and a limited amount of technical equipment. Textbooks must be purchased by the individual student.

On completion of the medical school course the graduate will then be permitted to have one year of a rotating internship before entrance into the Army. In the instance of a very few individuals maybe they will be allowed to continue one more year as a resident. The boy who is selected to go into the medical school will certainly be in luck; he will not only have every expense paid for him by the Government but he will also obtain a salary. If he happens to be married the usual provisions for the care of the wife will apply to the medical student just as to any other soldier in the Army. All this will cost the Government a large amount of money, but it seems to be the only way that a limited number of students can go through medical training without being interrupted by military duties.

There has been some criticism of the plan, largely on the basis of the tremendous expense to the Government which would not be necessary were the future physicians segregated in some other way so they could continue their medical training. The Secretary of War has ordered all of the enlisted reserves into the Army. Consequently, the medical student cannot be carried as a reserve but must actually be in the Army, thereafter subject to the privileges and the duties of a soldier. As has been implied earlier, there are innumerable training

schools of various kinds for the enlisted personnel of the Army but the future doctor and future dentist are the only men in the Army who will have the good fortune of being trained broadly and who will be qualified at the completion of training to engage in their profession.

GROUPING LOCAL PRACTITIONERS

Sometime about a year ago an editorial appeared in the Pennsylvania Medical Journal written by one of the doctors of the state society. In this editorial it was suggested that there should be a grouping of local practitioners. The author* advanced many reasons why this could and should be done and he contended forcibly that there exists a challenge to organized medicine to advocate and work for clinic-centers.

Clinic-centers in small communities would be excellent in many respects, writes Dr. Raymond. They could enter the field of preventive medicine more actively than is now done by practitioners of medicine. In this particular field it would be possible to cooperate with the state and Federal health programs, preventive inoculations could be given, and periodic health examinations made for all age groups. In the realm of curative medicine there would be ample office space with possibly some of the men specializing in certain of the specialties. There could be emergency beds. The clinic-center could be used as a triage station for the sorting and selection of patients who would need hospitalization.

A uniform fee schedule could be provided for the advantage of the clientele of clinic-centers. There would be greater professional cooperation, hence increased public confidence.

For the profession there would be a preservation of the doctor-patient relationship; there would be a saving in expense; the overhead would be distinctly reduced. There would be a localization of medical activities of a smaller community in one place. The communities themselves would take pleasure and pride in their health center.

The doctor presented his suggestions before the shortage of medical men became as acute as it now is in certain sections of the country, notably in the South where the profession contributed a very large number of its active members to the armed forces. The difficulties of practice are going to be greater and greater as the war continues. Might it not be that these clinic-centers might well be started now to make the lot of the medical man easier and to prepare as well a suitable place for the doctor in the armed services to return upon the completion of his services to his country.

*Raymond, Malcolm L.: Grouping local practitioners—another consistent challenger, editorial, Pennsylvania M. J., 1942.

THE TREATMENT OF ACUTE CHOLECYSTITIS

The treatment of acute cholecystitis has always been more or less of a controversial subject among medical men and surgeons. Even in the specialized group there are differences of opinion, as witness the discussion that occurred after the presentation of a paper by Zollinger and Cutler* at the time of the American Medical Association meeting last June. Some of the discussors believe that acute cholecystitis represented a surgical emergency, while others felt that it did not require an emergency operation. As a matter of fact, Behrend was quite definite in his statement that acute empyema of the gallbladder should not be operated on immediately.

The paper which provoked the discussion seems to be eminently a just and dispassionate discussion of acute cholecystitis. The two authors have more or less arbitrarily divided the patients who have acute inflammation of the gallbladder into three groups. The first group, which makes up the greatest number of patients, can be prepared for operation with rest, fluids and relief of pain in five or six days. Very often these individuals do not have more than minimal signs and symptoms, nevertheless they should be subjected to hospital care and be

*Zollinger, Robert, and Cutler, E. C.: The treatment of acute cholecystitis, J.A.M.A., 121:481, 1943.

prepared for an operation when properly hydrated and made ready for the surgical procedure. In this first group the response to conservative treatment is usually satisfactory, the temperature returning to normal, the leukocyte count diminishing, and the local tenderness being distinctly improved. On the other hand, with the second group the temperature, leukocyte count and physical findings do not show improvement but remain constant. It is not advisable in this second group to delay operation and as soon as the fluid balance has been adjusted, the surgical relief should be attempted within thirty-six to forty-eight hours. In the last group, a relatively small number of patients, the signs and symptoms show rapid progression and drainage of the gallbladder should be performed as soon as possible.

With most of the suggestions made by the surgical writers, most medical men will agree. The medical man, however, should be more emphatic than he usually is in regard to the preoperative preparation of the patient who has had or has an acute cholecystitis. The patient should be given adequate amounts of fluid, a relatively high carbohydrate and protein diet, if he is not vomiting, in which case gastric suction should be employed and he should be given opiates if the pain is acute and severe, and heat should be applied to the abdomen. Then after a few days of this treatment the patient may be hospitalized and ready for the surgeon to operate in a day or so. However, if the medical man undertakes to prepare a patient in the home he should not forget that the patient should be under constant surveillance. The course of acute cholecystitis is never predictable and the patient may turn suddenly from improvement to a sharp exacerbation of the symptoms, he may be precipitated into the third group abruptly, with the necessity of immediate drainage of the gallbladder.

Under the regimen that has been followed by Zollinger and Cutler, the results have been excellent. Their mortality rate in a period of five years with 146 cases of acute cholecystitis was only 2.6 per cent. These authors incidentally conclude their paper with the statement which should be applied to every patient, namely that he be "treated as an individual surgical problem" or a medical one.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

March 1. Orleans Parish Medical Society, Board of Directors, 8 p. m.

March 2. Eye, Ear, Nose and Throat Staff, 8 p. m.

March 3. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Clinico-pathologic Conference, Marine Hospital, 7:30 p. m.
Mercy Hospital Staff, 8 p. m.

March 4. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Baptist Hospital, Executive Meeting, 8 p. m.

March 8. Orleans Parish Medical Society, Scientific Meeting, 8 p. m.

March 10. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Women's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

March 15. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

March 16. Charity Hospital Medical Staff, 8 p. m.

March 17. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Clinico-pathologic Conference, Maine Hospital, 7:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

March 18. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 19. I. C. R. R. Hospital Staff, 12:30 p. m.

March 23. Baptist Hospital Staff, 8 p. m.

March 24. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
New Orleans Hospital Dispensary for Women and Children Staff, 8 p. m.

March 25. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 26. L. S. U. Faculty Club, 8 p. m.

March 31. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Clinico-pathologic Conference, Maine Hospital, 7:30 p. m.

During the month of February the Society held one regular scientific meeting. The program was as follows:

Problems Associated with the Treatment and Management of Gonorrhea—Dr. Percy S. Pelouze, Associate Professor, University of Pennsylvania.

War Production Board Orders M-30 and M-131—Dr. Philip H. Jones, Jr.

Your Income Tax—Mr. Sidney Bourgeois.

Drs. Henry O. Colomb, C. S. Holbrook, Walter J. Otis and T. A. Watters attended the opening of the Kittiwake Hospital at Pass Christian. Dr. Colomb has been appointed visting physician to the staff, and Dr. Holbrook has been appointed consultant to the staff.

Dr. H. Randolph Unsworth was recently installed as president of the New Orleans Neuro-psychiatric Club. Dr. Guy Odom was elected secretary-treasurer.

Dr. George Taquino was recently installed as president of the Hotel Dieu staff for 1943. Other officers installed were: Dr. Chaille Jamison, vice-president; Dr. Frank Chetta, secretary-treasurer; Dr. John S. Couret, Dr. Gilbert C. Anderson, Dr. Edmond Souchon, Dr. Edwin A. Socola, Dr. H. Theo. Simon. Dr. Lucy Scott Hill and Dr. C. J. Tripoli, additional members of the board.

Dr. George Battalora attended a joint meeting of the American Academy of Orthopedic Surgeons and the Clinical Orthopedics Society of America which met in Chicago, January 18.

Dr. P. Jorda Kahle presented a paper on Cytologic Changes in Carcinoma of the Human Prostate Gland following Treatment with Diethylstilbestrol Dipropionate before the Jefferson Davis Parish Medical Society January 21.

DANIEL J. MURPHY, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

TO DISTRICT AND PARISH SOCIETY SECRETARIES

Again the Journal Committee appeals to the Secretaries of the District and Parish Societies to submit reports of the meetings to their official Journal. What is being done in the different Parishes and Districts of the State is of interest to many members in the State Society. Information can only be obtained through the Secretaries of the constituent organizations.

OUACHITA PARISH MEDICAL SOCIETY

The regular meeting of the Ouachita Parish Medical Society was held on Thursday, February 4, at eight o'clock, at the St. Frances Sanitarium, Monroe, Louisiana. An interesting case report was given by Dr. H. L. Flowers on phytobezoar. The bezoar was found in the terminal ileum and was composed of cocoanut shreds. This was discussed by Dr. J. Q. Graves and Dr. D. I. Hirsch.

Two motion pictures, Reduction of Intussusception, and Compound Depressed Fracture of Skull, were shown under the auspices of the Ouachita Parish Medical Society. There being no further business before the Society, the meeting was adjourned.

On Wednesday, February 3, 1943, Dr. Percy S. Pelouze lectured at the Monroe Charity Hospital,

Monroe, Louisiana, on Problems Associated with the Treatment and Management of Gonorrhea. A large number of the members attended.

Glenn T. Gallaspy, President.
G. A. Varrino, Secretary-Treasurer.

RAPIDES PARISH MEDICAL SOCIETY

The Rapides Parish Medical Society met in Alexandria on Monday night, February 1, 1943. Scientific papers were read by the following doctors from New Orleans:

"The Treatment of Urinary Infections," by Dr. Edgar Burns; "Preoperative and Postoperative Care of Surgical Patients," by Dr. Rawley Penick; and "Fluid and Electrolyte Requirements of Surgical Patients," by Dr. Samuel B. Nadler.

The Secretary-Treasurer of the Louisiana State Medical Society, Dr. P. T. Talbot, also attended the meeting.

LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE

Because of the accelerated program which is in effect at the School of Medicine of Louisiana State University, the 1942-43 session will come to a close on March 6, 1943, three months earlier than the usual June closing. The present school year began on June 25, 1942.

The School of Medicine Commencement Exercises will take place in New Orleans on March 10, at the Municipal Auditorium. These will be the second medical school graduation exercises to be held in New Orleans under the accelerated program. Before the latter went into effect, the medical school seniors were graduated on the Baton Rouge campus at the regular University Commencement Exercises.

Franklyn Bliss Snyder, Ph.D., Litt.D., LL.D., L.H.D., President of Northwestern University, Chicago and Evanston, will be the Commencement Speaker.

Registration for the next school year will take place on March 11, 12, and 13. Classes will begin on Monday, March 15, and the year will end on December 17, 1943. Under the accelerated program a class will graduate every nine months.

The School of Medicine enrollment this year is 344, which is about the same as the enrollment for the past two years. Unlike that of most of the other schools and colleges in the university, the medical school enrollment has not showed a decrease on account of the war.

The Dean's office at the School of Medicine of Louisiana State University announces the appointment, effective February 1, 1943, of Paul S. Lavik, Ph.D., as full-time instructor in the Department of Biochemistry.

Dr. Lavik comes to the School of Medicine from the University of Wisconsin where he was a Research Assistant in Biochemistry. He was born in Camrose, Alberta, Canada, of Norwegian descent, and has since become a citizen of the United States. He received his B.A. degree from St. Olaf College, Northfield, Minnesota, in 1937; his M.S. from the University of Wisconsin in 1941; and his Ph.D. this year from the same university. His field of research was biochemistry and organic chemistry. He is a member of the Blue Key National Honorary Fraternity and of the Gamma Alpha Graduate Scientific Fraternity.

Dr. Lavik is the author of a number of papers in the field of biochemistry. His publications include Dietary Fat and Tumor Formation, The Effect of Certain Carcinogens on Vitamin A in the Liver, and Some Additive Effects of Carcinogenic Hydrocarbons.

Dr. Hubert Randolph Unsworth, Clinical Assistant Professor of Neuro-Psychiatry at the Louisiana State University School of Medicine, was elected President of the New Orleans Society of Neurology and Psychiatry at the last meeting of the Society, which was held on January 21, in New Orleans. Dr. Guy Odom, Instructor in Surgery at the School of Medicine, was elected Secretary-Treasurer of the Society at the same meeting.

Dr. George C. Battalora, Clinical Assistant Professor of Orthopedics of Louisiana State University School of Medicine, attended the joint meeting of the American Academy of Orthopedic Surgeons and the Clinical Orthopedics Society of America which met in Chicago on January 18.

Dr. George W. McCoy, Director of the Department of Public Health at the Louisiana State University School of Medicine, is in New York attending the annual meeting of the National Foundation for Infantile Paralysis. The meeting began on January 23, 1943.

Dr. E. L. Burns, of the Department of Pathology of the Louisiana State University School of Medicine, and Dr. P. Jorda Kahle, Director of the Department of Urology, jointly presented a paper before the Jefferson Davis Parish Medical Society on January 21, 1943, at 8:00 p. m. Their subject was Cytologic Changes in Carcinoma of the Human Prostate Gland Following Treatment with Diethylstilbestrol Dipropionate.

AMERICAN FOUNDATION FOR TROPICAL MEDICINE

At a recent annual meeting of this organization, Dr. H. W. Kostmayer, Dean of the School of Medicine of Tulane University, was elected as one of the Board of Directors.

The Directors also elected a Medical Committee of six, on which committee was placed Dr. Ernest Carroll Faust, Acting Head of the Department of Tropical Medicine of Tulane University, and Col-

onel Charles F. Craig, former Professor of Tropical Medicine of Tulane.

Lt. Commander Maxwell E. Lapham was one of the eight men elected to membership in the Foundation.

AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

President J. De J. Pemberton has taken a poll of the members of the Executive Council of the American Association for the Study of Goiter, and it is the unanimous opinion of the Executive Council that all meetings of the Association be postponed for the duration of the war. It is also the opinion of the Council that nothing would be gained by having a meeting of the Executive Council at this time. It was further agreed that all of the present officers shall hold their positions until the next meeting of the Association. It is the desire of the president that the membership be acquainted with the above facts.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates will be conducted at Pittsburgh, Pennsylvania, by the entire Board from Wednesday, May 19, through Tuesday, May 25, 1943. The Hotel Schenley in Pittsburgh will be the headquarters for the Board, and formal notice of the exact time of each candidate's examination will be sent him several weeks in advance of the examination dates. Hotel reservations may be made by writing direct to the Hotel.

Candidates for reexamination in Part II must make written application to the Secretary's Office not later than April 15, 1943.

The Pittsburgh Obstetrical and Gynecological Society will hold a subscription dinner meeting at the Hotel Schenley, on Saturday evening, May 22, 1943, at 7:00 p. m. Visitors, here for the examination, are cordially invited to make arrangements to attend. Reservations may be made by writing to Dr. Joseph A. Hepp, Secretary of the Society, at 121 University Place, Pittsburgh, Penna. An interesting program is being provided.

The Office of the Surgeon-General (U. S. Army) has issued instructions that men in Service, eligible for Board Examinations, be encouraged to apply and that they may request orders to Detached Duty for the purpose of taking these examinations whenever possible.

Candidates in Military or Naval Service are requested to keep the Secretary's Office informed of any change in address.

Deferment without time penalty under a waiver of our published regulations applying to civilian candidates, will be granted if a candidate in Service finds it impossible to proceed with the examinations of the Board. Applications are now being received for the 1944 examinations. For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

AMERICAN FEDERATION FOR CLINICAL RESEARCH

The first meeting of the New Orleans section of the American Federation for Clinical Research was held February 17 in room 410, of the Louisiana State University Medical Center. The following program was presented: "Serial Bone Marrow Studies at Various Sites in Blood Dyscrasias" by Dr. Philip Pizzolata of L. S. U.; "The Renal Concentration Test Using Posterior Pituitary Extract" by Dr. Hugo Engelhardt, of Tulane; "The Role of Congestive Heart Failure in the Production of the Edema of Acute Glomerular Nephritis" by Dr. John S. LaDue of L. S. U.

Future meetings of this organization will be held every two months. These meetings are open to all who may be interested. The papers are limited to strictly ten minutes and the total discussion is limited to twenty minutes. Members, associates and guests may participate in the discussion; each discussor is limited to five minutes.

The officers of the organization are: Dr. Hugo T. Engelhardt, president; Dr. G. R. Meneely, secretary-treasurer; Dr. Travis Winsor, program chairman.

SCHEDULE FOR TWENTY WAR SESSIONS ANNOUNCED BY AMERICAN COLLEGE OF SURGEONS

New developments in military and civilian medical and hospital service will be brought to members of the medical profession at large, and hospital representatives, through a series of twenty War sessions, beginning March 1, to be held throughout the United States under the sponsorship of the American College of Surgeons with the cooperation of other medical organizations and of the Federal medical services.

Each War Session will consist of an all-day program, lasting from 9:00 o'clock a. m. to 10:00 p. m., including luncheon and dinner conferences. There will be eight meetings in each session, four of which will be for the entire assembly, and the remainder divided into two meetings each for physicians and for hospital representatives. Subjects will be similar in the different places but some of the speakers will be changed in the different states and service commands. Nationally known representatives of the United States Army, the United States Navy, the United States Office of Civilian Defense, the United States Procurement and Assignment Service, and the United States Public Health Service, will address the meetings and will lead discussions, in addition to participation by prominent leaders in civilian medical practice and hospital service.

Topics to be discussed relating to military medicine will include care of the ill and injured in com-

bat zones and after evacuation. The newer types of injuries encountered in this war, such as crush and blast injuries, will be especially considered, together with prevention and treatment of infections, and treatment of burns, shock, and injuries of specific parts of the body. Anesthesia, plastic surgery, and the psychoneuroses of war, will be some of the other topics. Problems of civilian medical care in wartime which will be discussed will include the responsibilities of individual doctors and hospitals; personnel problems of hospitals; organization of emergency medical services; maintaining adequate supplies, furnishings, and equipment; maintenance of high standards of medical and nursing education, and of hospital service in general; hospital public relations; and administrative adjustments in professional staffs of hospitals. The opening meeting of each session will be devoted to discussion of "Medical and Surgical Aspects of Chemical Warfare," led by a representative of the United States Office of Civilian Defense, and the closing meeting will be a panel discussion on problems in wartime civilian medical practice to be led by representatives of the United States Public Health Service, the American College of Physicians, the American Medical Association, medical services in industry, and the American College of Surgeons. Some of the topics for consideration at this meeting will be endemic and epidemic diseases, including tropical diseases; medical services in industry; medical and surgical practice; and supplementary postgraduate education for medical officers and civilian doctors.

Dr. Irvin Abell, Chairman of the Board of Regents of the College, in announcing the War Sessions, said that although participating states and provinces for each meeting have been designated to facilitate arrangements, there will be no geographic restriction on attendance, and those who plan to attend may select the place and time which are most convenient.

The American College of Surgeons cancelled its 1942 national meeting and is holding in abeyance plans for a Clinical Congress in 1943, in the meantime offering the regional meeting plan provided by the War Sessions to save the time of the doctors and other personnel, and to minimize transport difficulties, without sacrificing unduly during wartime the educational and stimulative benefits of medical assemblies.

For Texas and Louisiana, the meeting will be held Monday, March 29, at Houston, Texas, with headquarters in the Rice Hotel. For the States of Tennessee, Arkansas, and Mississippi, the meeting will be on Friday, March 26, at Memphis, Tennessee, at the Peabody Hotel.

NEWS ITEMS

Dr. and Mrs. James Q. Graves announce the marriage of their daughter Jeanne to Alexander Boatner Myatt, junior, Ensign, United States Naval Reserve, on the fourteenth of February, at Monroe.

Dr. and Mrs. Frederick Arthur Willius, of Rochester, Minnesota, announce the marriage of their daughter, Jane Eleanor, to Dr. Rudolph Matas Landry on February 27.

The following United States Public Health Officers have been ordered to New Orleans: P. A. Surgeon Walter J. Reilly; Asst. Surgeon Albert H. Williams; P. A. Surgeon Benjamin L. Newell; Asst. Surgeon Robert D. Furlong; Asst. Surgeon James W. Todd; and Asst. Surgeon M. A. Troncelliti. P. A. Surgeon C. T. Bowen has been relieved from duty in New Orleans and sent to Ocala, Florida, and Asst. Surgeon C. N. Fiore has been ordered to Port Arthur, Texas.

Election of B. Thurber Guild, M. D., member of the staff of the Massachusetts General Hospital, Boston, as president of Fairchild Brothers and Foster, a subsidiary of Winthrop Chemical Company, was announced yesterday (Tuesday) by Dr. Theodore G. Klumpp, president of the parent company.

TOURO INFIRMARY

The regular monthly meeting of the staff of Touro Infirmary was held on the evening of February 10 at 8 p. m. The first order of scientific business was a clinico-pathologic conference with Dr. Sam Nadler leading the discussion of a former patient whose organs were presented by the pathology department.

There were two case reports, one by Dr. Sidney Copland, who discussed fracture of the shaft of the femur which had been grafted with bone. Dr. Meyer Teitelbaum gave a most interesting presentation of the x-ray diagnosis of lesions of the large bowel.

SOUTHERN BAPTIST HOSPITAL

The regular monthly meeting of the Clinical Staff of Baptist Hospital was held Tuesday, February 23 in the Chapel of the Hospital. Dr. Waldemar Metz presented a series of interesting plastic cases which were most instructive.

HEALTH OF NEW ORLEANS

The Bureau of the Census, Department of Commerce, reports that for the week ending January 16 there was reported in the City of New Orleans 186 deaths as compared with 108 the previous week. Of these deaths, 118 were in the white population and 68 in the negro. There were 19 deaths in children under one year of age, divided 10 white and nine negro. There was a rather sharp reduction in the number of deaths in the city for the week ending January 23 as contrasted with the previous week. The 168 deaths that occurred this

week were apportioned 89 white, 78 negro with 18 infant deaths, 14 of which were in the negro race.

The weekly morbidity index for the week of January 30 was lost from some cause or another as it was never received in the office of the Journal.

The week ending February 6 showed 157 New Orleanians dying, 97 of whom were in the white race and 16 in the negro. There was a sharp drop in the week which ended February 13, as only 128 deaths were listed, 86 of whom were white people and 42 were in the colored population. This week there were only 11 infant deaths, nine taking place in the white and only two in the negro race.

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INFECTIOUS DISEASES IN LOUISIANA

For the week ending January 16, the Louisiana State Department of Health in their weekly morbidity report listed 453 cases of syphilis, 163 of gonorrhea, 33 of mumps, 26 of measles, 24 of pulmonary tuberculosis, 14 of scarlet fever, and 11 of chickenpox. No other diseases occurred in numbers greater than 10 during this particular week. Most of the patients with gonorrhea were reported from army camps, as were 21 of the 26 cases of measles. Of the unusual diseases a patient was found with typhus fever in Jefferson Davis Parish. For the week which ended January 23, while syphilis as customary led the list of reportable diseases with 447 cases, followed by gonorrhea with 262, it is interesting to note that some of the contagious diseases of childhood were quite prevalent. For example there were 58 cases of mumps, measles 57, with chickenpox 13. Also there were listed 41 cases of pulmonary tuberculosis and 12 of lobar pneumonia. Three cases of undulant fever, 11 cases of meningococcus meningitis with nine cases from military sources were also listed. There were five cases of typhus fever found this week. For the following week which terminated January 30, there were recorded 493 cases of syphilis, 225 of gonorrhea, 68 of measles, 61 of mumps, 34 of chancroid, 15 of chickenpox, 12 of lymphogranuloma venereum, 11 of pulmonary tuberculosis, and 10 of whooping cough. One case of poliomyelitis was reported from Calcasieu Parish, six cases of meningococcus meningitis were reported from Rapides Parish and from military sources. Most of the cases of measles came from the army, as did the mumps. As measles is quite prevalent at the present time and 62 cases were found in the army camps, with only 68 being reported for the whole state, it is quite obvious that many of these cases are not being reported. The week ending February 6 found an appreciable reduction in all the reportable diseases except pulmonary tuberculosis of which 75 were listed this week. Other diseases occurring in numbers greater than 10 include 181 cases of syphilis, 94 of gonorrhea, 35 of mumps, 34 of measles, 16 of scarlet fever, and 13 each of malaria, influenza, and chancroid. Only two cases of meningococcus meningitis were reported this week, both listed as being out of the state. There is no other unusual disease listed.

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CORRESPONDENCE

1913½ Jackson Ave.
New Orleans, La.
July 1, 1942

I wish to announce the establishment of the Colored Trained Practical Nurse's Register. I wish to inform you of the fact, that these nurses have two years and six months Hospital Training. They are willing to render their service when needed. You may contact them by calling Canal 2439.

Very truly yours,
Mrs. A. E. Wilson (RN)

DR. FRANK P. PERRET

(1904-1943)

Dr. Frank Placide Perret, Jeanerette, was born in 1904. He graduated from Tulane University, School of Medicine, in 1928. He began the practice of medicine in Pineville, La., moving to Jeanerette in 1932. He has been a member of the Louisiana State Medical Society since his graduation. He died on January 10, 1943.

In the obituary notice the following tribute was paid to this prominent physician:

The dominant outstanding features of Dr. Perret's life were his sterling character and charming personality. His life was an inspiration to all, an incentive to manhood and a comfort to old age. His presence radiated a spirit of good cheer and encouragement to the maimed and suffering. His individuality lent rays of sunshine when the dark clouds of adversity and death hovered near. He was a prince of good fellows and one of God's noblemen. He knew life and how it should be followed.

He was true to his faith, loyal to his friends, but when the finger of sorrow beckoned he knew no color, nor creed, bigot and liberal minded were accorded the same tender care and skill. As a physician he was measured as one of God's messengers. As a man, he will live in memory as a true disciple of the doctrine, "Do unto others as you would have them do unto you."

To know the man was to love him. We mourn his loss greatly, but feel richer in the possession of the knowledge that mankind profited by his being.

He lived his life not for himself alone, and yet at the balance must be set down as one who loved his fellowman. He loved his neighbor as himself. He was the friend of man.

WOMAN'S AUXILIARY

Mrs. Clarence B. Erickson, State President of the Auxiliary, asks that an important announcement be made at this time.

Due to war-imposed conditions the usual conventions of the State Medical Society and its Auxiliary will not be held. Instead, the Medical Society at present plans to have a session of the House of Delegates on the morning of May 3, in Baton Rouge, to be followed in the evening of the same day by the address of the President and the annual oration.

The Board of the Auxiliary will meet in the morning and probably in the afternoon of May 3, with any Auxiliary members who are not on the Board welcome to attend. In the evening the Auxiliary will be invited to hear the addresses of the President and guest speaker of the Medical Society.

More details of the plan will be given in the April Journal.

This month we have an account of the activities of the Rapides Parish Auxiliary. The President, Mrs. O. B. Owen, writes that they are having a full program with celebration of Doctors' Day, promotion of Hygeia and War Service their major projects. The Doctors on Their Day, will be given a chicken barbecue (no rationing of chicken, you know) on the lawn of the home of Dr. and Mrs. Owens. The Auxiliary has gotten subscriptions to Hygeia in all public and private schools in Alexandria, and they have given subscriptions to two U. S. O. clubs here.

An auxiliary member is general chairman of surgical dressings for the Red Cross, and members have given more than three hundred hours of service to various phases of Red Cross work. They serve once a month as hostesses in the U. S. O. club. In December they gave a party for Service men, using their own sugar and coffee, a real mark of patriotism. In a recent drive for War Bonds the Auxiliary raised approximately $15,000.

Let us all salute Rapides. That is indeed a list of worthwhile accomplishments.

Mrs. A. G. McHenry of Monroe, probably our most faithful reporter for Auxiliary News, sends an account of the February meeting of her group. Following a lovely luncheon in the Butterfly Room of the Frances Hotel, a business meeting was held with Mrs. R. W. O'Donnell, president, presiding. Plans were outlined for the entertainment of civilian doctors and medical officers of the A. A. F. Navigation School on Doctors' Day. Mrs. A. R. Tisdale gave a report of the recent meeting of the State Board. Mrs. D. T. Milam read an article on Women Defense Workers of Cuba. A book review by Mrs. Clifford Johnson was followed by election of officers with the following named: President-Elect, Mrs. A. B. Gregory; First Vice-President, Mrs. F. C. Bennett; Second Vice-President, Mrs. D. M. Moore; Recording Secretary, Mrs. H. V. Collins; Corresponding Secretary, Mrs. I. J. Wolff; Treasurer, Mrs. A. D. Tisdale; Publicity Secretary, Mrs. W. L. Bendel; Historian, Mrs. J. E. Walsworth.

After reading these two interesting accounts, will some of you presidents from whom we have had no news this year, send me some material for next month's News? I have written several of you but have had no response and we want to hear from all of you. Thank you.

Mrs. James W. Warren, Chairman,
Press and Publicity.

BOOK REVIEWS

Electrotherapy and Light Therapy with the Essentials of Hydrotherapy and Mechanotherapy: By Richard Kovács, M.D. 4th ed. Philadelphia, Lea & Febiger, 1942. Pp. 735, illus. Price, $8.00.

In view of the remarkable progress that has been made in the field of physical therapy in the last few years this fourth edition represents a successful attempt to bring this work up to date. It is especially timely during this period when physical therapy should play a large part in the relief of disability and suffering experienced on the many fronts of the present conflict.

This book is divided into five parts or 38 chapters. Part I is devoted to electrophysics and contains discussions of the generation, conversion and distribution of electricity. Part II, dealing with electrotherapy and electrodiagnosis, is concerned with the various types of apparatus, the technics, the physiologic effects, the dangers and the indications and limitations of the many forms of electrotherapy. The chapters on electrodiagnosis contain valuable new information regarding electrophysiology as well as rather detailed discussions of the apparatus and technics of the examinations.

Light therapy is considered in Part III. The physics of radiant energy, infra-red and ultraviolet radiation, heliotherapy and artificial ultraviolet therapy are contained in the chapters of this part. Part IV contains three new chapters on the employment of water, massage and exercise.

Part V represents the clinical application of the types of physical therapy discussed in the first four sections and is devoted to the employment of these agents in the therapy of the diseases of the various systems and organs. The discussions of the organization and conduct of physical therapy

in office and institutional practice are valuable additions to this volume.

The text is well written and the illustrations are excellent. A list of references following each chapter and a complete index make this book a valuable work for those interested in the modern application of physical therapy.

J. N. ANÉ, M.D.

Endocrinology, Clinical Application and Treatment: By August A. Werner, M.D., F.A.C.P. 2d thoroughly rev. Philadelphia, Lea & Febiger, 1942. Pp. 924. Illus. pl. Price, $10.00.

This volume is a thorough, amply illustrated treatise on all that falls into the realm of endocrinology. Besides being a reference to physicians in general it will serve as a supplement to every specialist's library for the author has left no branch of medicine devoid of endocrine relationship. The student will find this book a useful guide to a clearer understanding of endocrinopathology.

Its extensiveness is manifest by the well concentrated 924 pages which are grouped under 23 chapters. Besides the individual sections devoted to each endocrine gland there are coordinated treatises on the autonomic nervous system, calorimetry, the hormones, sterility, lactation, obesity, defective osseous metabolism, cutaneous, hair and tooth manifestations. If one gives sufficient study to this excellent work, and it is well worth the time, a knowledge of endocrinology is obtained. Casual reading, and the presentation is interestingly readable, will impress one with the valuable diagnostic information obtainable from the endocrine system. The survey of each endocrine defect, illustrated and with examplary case report, is projected in such a manner that comparative diagnosis is made with ease. The reviewer, however, questions the author's statement in the preface, "as a result of our present knowledge of the functions of the ductless glands, the terms: neurasthenia, hypochondria, and nervous breakdown are becoming obsolete." Endocrinology can hardly replace neuropsychiatry. An adequate endocrine knowledge, however, will increase diagnostic acumen, prevent such erroneous diagnosis, and greatly aid the general practitioner as well as the specialist.

The fact that this is a second edition is evidence enough of the success of the original publication and is in itself a compliment to the author and his work. The reviewer is well impressed on the whole with the mode and completeness of presentation which reveals the advancement of endocrinology to an exact science with an ever increasing position of importance in the field of medicine.

GORDON MCHARDY, M.D.

Abdominal and Genito-Urinary Injuries; Military Surgical Manuals, National Research Council. Philadelphia, W. B. Saunders, 1942. Pp. 243. Illus. Price, $3.00.

This is the third volume in a series of military surgical manuals prepared under the auspices of the Division of Medical Sciences of the National Research Council. The text is divided into two parts, the first on abdominal injuries and the second on genito-urinary injuries.

The section on abdominal injuries, prepared by Ambrose H. Storck, whose authoritative experiences on this subject have been widely published, comprises eleven chapters. The first few chapters are devoted to general considerations of abdominal wounds in modern warfare, incidence and classification of the various kinds of wounds and their mechanism of productions, factors influencing mortality and possible method of controlling them, estimation of the extent of injury based upon various procedures of examination, the general preoperative care of the patient, and factors determining operability. One chapter deals with the type and selection of anesthesia, and one to a description of operative procedures applicable to various injuries. The remaining chapters are concerned with wounds of structures and organs including the abdomino-thoracic type, postoperative treatment, complications, and mortality statistics. The subject matter is presented in a succinct, explicit and pleasantly readable manner. The illustrations which are of the simple line drawing type are profuse and informative. Unfortunately some of the drawings are not properly credited to their original source, even in the list of references following each chapter, slightly marring an otherwise excellently produced, carefully edited, and authoritatively written text.

The section on genito-urinary injuries consists of six chapters, each of which is written by an eminent urologist. The first is devoted to a consideration of diagnostic factors of war injuries of the genito-urinary tract in general, and the other to injuries of special organs in this field with brief discussions of their management. The last chapter entitled "Do's and Dont's," is a pithy rule-like statement of procedures which should and should not be done in the handling of these patients. The numerous illustrations are mostly tone drawings excellently reproduced with a lucid distinctive style.

This timely manual will be of immense value not only to military surgeons but also to those interested in traumatic surgery. The Division of Medical Sciences and its Committee on Surgery of the National Research Council deserves sincere commendation for their unstinted efforts in the production of these excellent war manuals.

MICHAEL DEBAKEY, M.D.

Central Autonomic Regulations in Health and Disease: By Heymen R. Miller, M. D.; with an introduction by John F. Fulton, M. D. New

York, Grune & Stratton, 1942. Pp. 430. Price, $5.50.

This monograph deals particularly with the central antonomic controls and their relation to clinical medicine. It is a successful attempt to bring to the attention of clinicians the physiologic concept of central integration of autonomic mechanisms and the significance of overlapping representation of somatic and automatic levels of function. This concept, as Dr. Fulton points out, has been slow to find recognition and application in clinical medicine. The first ten chapters deal with the general physiology of the autonomic nervous system, the autonomic regulation of body temperature, water and minerals, metabolism, circulation, respiration, the alimentary tract, the genito-urinary and reproductive systems, and sleep. These are followed by short chapters on the central mechanisms of emotion and the response of the autonomic nervous system to pharmacodynamic substances. Throughout these discussions, particular emphasis is placed on the role of the hypothalamus as the principal subcortical level of autonomic function. The author has departed from the usual order in placing the discussion of the anatomy of the peripheral autonomic system and of the hypothalamus in the last three chapters at the end of the book. All of the chapters are unusually well documented with entensive bibliographies.

As a clinician writing for his colleagues, the author presents clinical evidence, wherever possible, to show that many patterns of clinical disease are partially or wholly expressions of autonomic activity and that this activity may or may not be associated with somatic alteration. Particularly interesting are the detailed observations of Professor P. Anohkin of an unusual case of coelescent twin presented in connection with excellent discussions of sleep and central emotional control.

H. S. Mayerson, M. D.

Human Pathology: By Howard T. Karsner, M. D. Philadelphia, J. B. Lippincott Company, 1942. 6th ed. rev. and reset. Pp. 817. Price, $10.00.

In this revised edition of Human Pathology, the author has attempted to retain those facts which in the light of more recent experimental and clinical evidence are still found to be pertinent to the disease processes to which they refer. The discussion of other subjects has been revised in the light of the newer knowledge, without appreciably lengthening the articles. The author has made no attempt to present an exhaustive analysis of the literature, but has a concise manner of presenting an adequate description of the disease processes, and has supplemented this with an adequate bibliography.

Descriptive paragraphs are adequately supplemented by illustrations, for the most part black and white, including many microphotographs. In addition to these black and whites, there are numerous color plates more vividly portraying the subject being discussed.

This text adequately covers the subjects of general pathology and should prove to be an adjunct to the library and to serve as an adequate reference book for students and for others interested in gaining a good basic knowledge of any one of the subjects discussed.

Alfred B. Longacre, M. D.

PUBLICATIONS RECEIVED

W. B. Saunders Company, Philadelphia and London: The Anatomy of the Nervous System, by Stephen Walter Ranson, M. D., Ph. D. Orthopedic subjects, Military Surgical Manuals, prepared and Edited by the Subcommittee on Orthopedic Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. A Textbook of Clinical Neurology with an introduction to the History of Neurology, by Israel S. Wechsler, M. D. Psychosomatic Medicine, by Edward Weiss, M. D. and O. Spurgeon English, M. D.

Charles C. Thomas, Springfield, Illinois: Food-Allergy, by Arthur F. Coca, M. D. Renal Lithiasis, by Charles C. Higgins, M. D.

J. B. Lippincott Company, Philadelphia, Montreal and London: Essentials of Gynecology, by Williard R. Cooke, M. D., F. A. C. S.

Paul B. Hoeber, Inc., New York and London: Treatment of Fractures, by Guy A. Caldwell, M. D., F. A. C. S.

Grune & Stratton, New York: Atlas of Ovarian Tumors, by Gemma Barzilai, M. D.

National Society for Crippled Children of the U. S. of America, Inc., Elyria, Ohio: A Primer on The Prevention of Deformity in Childhood, by Richard Beverly Raney, B. A., M. D. in collaboration with Alfred Rives Shands, Jr., B. A., M. D.

Harvest House, New York: The Sight Saver, by C. J. Gerling.

Lea & Febiger, Philadelphia, Pa.: Diseases of the Skin, by Oliver S. Ormsby, M. D. and Hamilton Montgomery, M. D., M. S.